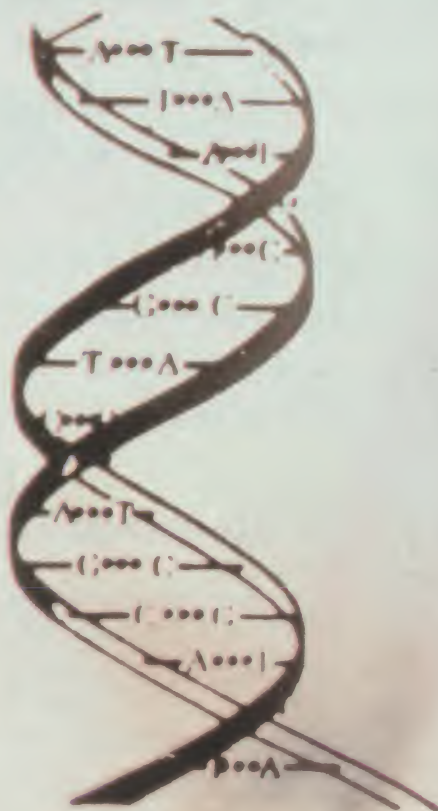


THE MACDONALD JOURNAL

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Future

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*Only butter
is butter.*

LIGHT CUISINE IS MADE WITH BUTTER.

Golden carrot soup

- 1/4 cup (50 mL) butter
- 1 sliced medium onion
- 1 small minced clove garlic (optional)
- 5 cups (1.25 L) water
- 2 1/2 cups (625 mL) sliced carrots
- 1/4 cup (50 mL) long grain rice
- 2 Tbsp (30 mL) chicken bouillon mix
- Salt and chopped parsley

Melt butter in medium saucepan. Sauté onion and garlic until tender. Add water, carrots, rice and bouillon mix. Bring to boil. Cover and simmer 20 to 25 min. Spoon vegetable mixture, part at a time, into blender container. Cover and blend until smooth. Add salt and parsley to taste. Makes 4 servings. Approx. 181 kcal*/serving.

*Source: Canadian Nutrient File
Health and Welfare Canada, 1985



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THE MACDONALD JOURNAL

May 1988

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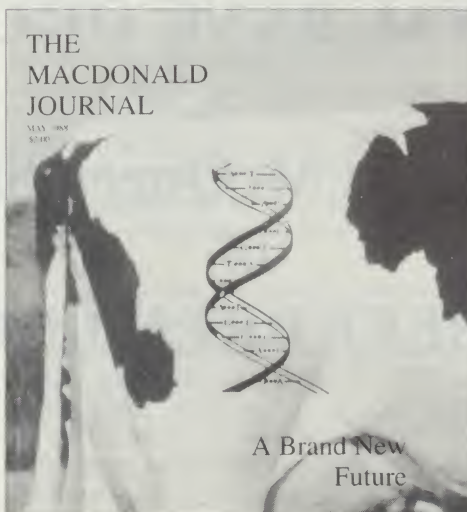
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Our cover photo symbolizes a brand new future for animal agriculture at Macdonald College. The double helix motif of the DNA (deoxyribonucleic acid) molecule is the stuff that genes are made of. Modern techniques of molecular biology have permitted an unprecedented ability to probe the genetic make-up of animals. DNA fingerprinting illustrates the uniqueness of the individual and its relationship to the breed. The DNA helix further symbolizes the emerging technology of gene transfer. The transfer of genetic information could greatly influence the rate and direction of genetic progress in our farm animals. Thanks to PAB Photographie, Coleraine, Quebec, for the hind quarter and to Professor Jeffrey Turner for the final cover photography.

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Guest Editorial

Canadian Milk Recording Scene in the 1990s

by Jacques Jalbert, Director
Dairy Herd Analysis Service

The look of provincial milk recording agencies has changed drastically during the 80s. During the second National Milk Recording Conference held in Montreal in October 1980, a consensus was generated around several ideas including the expansion of producer participation in milk recording and the universal availability of an optional range of management services. It was recognized that structural changes were required and that producer-users should be involved essentially in all aspects of the program.

Provincial Structure

At the time of the 1980 conference in Canada only the Dairy Herd Analysis Service (DHAS) was operating outside of a provincial or federal government. In 1981 the province of Ontario privatized its operations by forming the Ontario Dairy Herd Improvement Corporation (ODHIC). In 1986 the herds in Ontario tested previously by Agriculture Canada through their R.O.P. (Record of Performance) program were amalgamated into this corporation. Ontario was the first organization to operate fully with a board of administrators consisting of a majority of producer-users. Alberta became the second province to privatize its operation by forming the Alberta DHIS, which began operating in September 1985. Since then, both British Columbia and Saskatchewan have privatized their DHI activities.

In March 1988 the three Maritime provinces agreed to form a corporation: Atlantic Dairy Livestock Improvement Corporation (ADLIC) that will manage the DHI operations in the three provinces.

All of the corporations formed to date have a board of administrators made up of a majority of producer-users of the DHI program.

A second major aspect concerning the reorganization of milk recording agencies is the fact that R.O.P. (Agriculture-Canada) is retiring from its activities at the producer level. Therefore, all herds on the federal program have been, are in the process, or will shortly be transferred to provincial or regional agencies.

National Structure

The Canadian Milk Recording Board (CMRB) has also gone under the physician's scalpel. From a large body representing all parties involved in the dairy industry, it has now been trimmed to having a representative from each provincial organization. It is now a more dynamic, decision-making body establishing procedures and minimum standards for milk recording as well as providing leadership and encouraging participation in milk recording.

A new body has emerged from the re-organization of milk recording agencies and their activities. It is the National Advisory Council for Dairy Animal Improvement (NACDAI), which "shall function in an advisory and coordinating capacity to Agriculture Canada, provincial departments of agriculture and other industry organizations as deemed appropriate, on all matters related to dairy animal performance testing evaluation, and improvement in Canada. The new CMRB is a member of this advisory council.

The Service

The "Dairy Herd Analysis Service" (DHAS) was initiated in 1966 by Macdonald College of McGill University to provide a computerized management information service to Quebec dairy farmers.¹

At the onset, some general principles were established: firstly, "that the DHAS program should become a farmer financed service; secondly, that the DHAS program should be an owner-sampler (o/s) program at least in the early stages; thirdly, that the emphasis be placed on putting all the production, feeding and management information on one monthly report; and fourthly, that provision be made to permit changes in the program."²

If we look at how the current operation respects these principles, in 1986-87, 66 per cent of the operating budget was paid directly by Quebec producers on DHAS. Out of 8,036 Quebec herds on DHAS, 6,305 or 78 per cent of the herds were on the o/s option. In 1988 production, feeding and management information is still presented as one package

on two forms of the DHAS output report. With respect to change, a staff of four professionals in agriculture and five programmer analysts are providing the resources supporting the future of DHAS.

Future of Milk Recording

In this era of information, computerization, intelligent phone systems, etc., milk recording agencies must build systems and services that use today's available technology.

On-Farm computers are a reality; data transmission over the phone is a reality. Exchange of data among partners in the dairy industry is here. Recently a group has emerged in the industry called the "Canadian Dairy Information Exchange" group (CDIE). Its major objective is to maximize the efficiency of all facets of data accumulation, exchange, and utilization within the dairy producing sector of the industry. It will reduce duplication in data collection at the farm level. Also, standardization of field descriptions and format will be a spin-off from this working group.

At the farm level, DHAS is developing strategies involving the use of lap-top microcomputers geared to providing facilities for collecting the data electronically at the farm, processing the data, and providing information reports right there on test-day. Information will be down-loaded to the PC prior to the test. After the visit, newly collected data will be up-loaded to the main frame computer for additional editing and processing.

The key element is to provide more adequate service at the farm level while maintaining a central processing unit which operates hand in hand with the rest of the industry, AI organizations, breed associations, extension workers, research institutions and so on.

This is exactly where Macdonald College is going with the evolution of its DHAS.

¹ DHAS Report 1979-80, Macdonald College, Quebec

² DHAS J.E. Moxley, 1976, presented to Canfarm Advisory Committee, Macdonald College, May 1976.

Dairy Cow Gene Transfer: Udder Possibilities

by Professor Jeffrey D. Turner
Department of Animal Science

Man has employed breeding strategies to select for certain traits in his domestic animals for centuries. Animals showing desirable traits were maintained and allowed to breed while those without the trait were removed. In this way, naturally occurring variation was exploited. Advances using classical breeding have been successful over the long term. Milk production, for example, has increased some 300 per cent in the last 50 years due to successful breeding programs. When superior genetics for a certain trait can be identified, then they can be incorporated into future generations of animals. The introduction of new traits is limited by the identification of an individual or breed which shows that trait.

Recent advances in molecular biological techniques give us the potential to introduce novel traits into our agricultural animals. Genetic engineering involves the transfer of a gene and its incorporation (recombination) into the genetic material of the target animal. Animals altered in this way are denoted as "transgenic" and the foreign gene as a "transgene." Advantages of gene transfer over classical breeding are: 1) the speed at which genetic progress is achieved, and 2) increased variety of physical attributes that an animal can be given because this technique overcomes the requirement for sexual gene exchange.

Major advances have been made at the experimental level using laboratory rodents. This was possible as placement of foreign genetic material into mice has now become straightforward. The results of these experiments are often spectacular in nature and have obvious implications on future agricultural practices. Take for example the transgenic mouse which grows twice as fast as its littermates or the transgenic mouse which produces human proteins in its milk.

Superior rate of gain is critical to a successful meat animal husbandry program. Body growth is regulated in animals by several hormones with an important one being growth hormone (GH) or somatotropin. If growth hormone levels increase in the blood,

the animal will grow faster. Certainly, daily injections of GH can increase average daily gain but this involves hormone and management costs. Transgenic mice bearing GH genes have rates of gain of 100 per cent above normal mice. Moreover, the extra GH is produced by the mouse for the mouse, there is no hormone or management costs. An additional bonus is that the increased growth "trait" is passed on to subsequent generations.

Lactation processes can be modified in several ways using genetic engineering. The synthetic capacity of the mammary gland is considerable. Cows' milk, for example, contains some 26 g/L casein protein, 37 g/L fat, and 48 g/L lactose sugar. If a portion of this capacity was committed to the production of a transgene protein, it would mean the production of significant amounts of this protein. Transgenic mice bearing the transgene for human tissue-plasminogen activator

(TPA) have been made and this protein is, in fact, produced in the milk. The TPA protein is of great value for medication for victims of heart attacks.

I offer the examples of the GH and TPA transgenes as evidence that this type of research is viable in the laboratory. The impact of these findings to the agricultural sector would be considerable if genetic engineering can be used successfully with livestock species.

Extrapolation of the laboratory experiments to the commercial scale requires overcoming several technical difficulties including identification of superior transgenes and improving gene transfer efficiency. These problems are not as acute in mice where generation time is short, large numbers of offspring are produced, and they are inexpensively maintained. Conversely, livestock species have long generation times, and produce few



Professor Turner and his graduate student Martin Léonard taking a mammary gland biopsy from a cow at the Macdonald College farm.

young which are costly to maintain. Therefore, only the most potent transgenes should be used and in conjunction with the most efficient gene transfer system.

An important attribute of a good transgene is that it becomes part of the host genome and functions properly there. Unfortunately, many transgenes do not fulfill these criteria. In most cases the inadequacies of the transgene are realized only after being transferred into embryos and allowed to develop to term. Clearly, a diagnostic system which tests transgenes for appropriate function prior to their insertion into animals is required to improve the efficiency of gene transfer.

Bovine mammary cell culture is a potential test system. Mammary epithelial cells are the milk producing cells within the udder. These cells thrive when placed under glass (*in vitro*) in an environment which mimics that found in the cow. The requirements for such cells include 1) a suitable material on which to grow: plastic or glass; 2) nutrients, provided by a complex media closely resembling blood serum; 3) proper atmospheric conditions of 20 per cent oxygen, 5 per cent carbon dioxide, and 100 per cent humidity, and 4) control hormones that will regulate growth and gene expression. It is in the mammary cells that transgenes would direct synthesis of their proteins and direct them into the milk. Introduction of foreign genes into cultured mammary cells is rapid and straightforward. If the transgene functions properly within these cells, a foreign protein will be produced and released into the media where it can be detected. In this way superior transgenes can be identified and only these used in subsequent gene transfer with livestock.

Advances in our understanding of reproductive biology has changed the way we conduct our breeding programs. Artificial insemination (AI), which is now universally accepted in some sectors such as the dairy industry, is a case in point. This technique readily permits the use of superior sire genetics without geographical or time constraints. More recently, embryo transfer has become a viable

technique which is finding favour in the export of purebred cattle. Embryo transfer frees the superior dam from any gestational responsibilities and allows her to donate fertilized eggs which can be implanted into recipient females. In the same manner as AI, embryo transfer allows breeding stock to produce more progeny than would be possible with classical breeding. The movement of genetic information between continents is now commonplace because of these techniques.

Success with embryo transfer has spurred the development of other embryo manipulations such as gene transfer. The production of transgenic farm animals is in its infancy with the procedures rather crude and inefficient. The most successful gene transfer method involves the direct microinjection of genetic material into the fertilized egg. The transgene of choice is delivered into the pronuclear region of the egg via a fine glass needle. As the egg is tiny, the precise movement of this needle must be controlled by special equipment and viewed through a microscope. Unlike mice eggs, which are clear and afford an excellent view of the pronucleus, bovine, sheep, and porcine eggs are opaque, making pronuclear microinjection difficult. To circumvent these problems brief centrifugation of the eggs and differential interference-contrast (DIC) microscopy is used. Following microinjection, the eggs are checked for viability and implanted into recipient females. Fewer than 2 per cent of the microinjected domestic animal eggs produce live young. This fact, taken in conjunction with the long gestational time in farm animals and the few young produced at each parturition, makes the production of transgenic farm animals a long-term proposition.

So, why change the cow? Certainly, our ability to produce milk exceeds our current demand! A new direction with excellent potential is the use of bovine mammary gland to produce novel transgenic proteins of commercial value. The mammary cells are extremely complex with respect to the range of biochemical reactions they perform. This

is in marked contrast to bacterial fermentation culture where reaction complexity is low. The bovine mammary gland can produce transgenic proteins involving complex proteins such as human hormones or factors, or for vaccines for the prevention of viral disease. Health care requirements for authentic, high purity human proteins for clinical therapy are currently being met by costly extraction from human tissues. The powerful protein synthetic capacity of the bovine mammary gland directed by human transgenes could, in theory, satisfy this requirement.

Viral proteins used in vaccine production must be produced in large amounts and in exactly the same form as in the viral pathogen. Viral transgenes working in the mammary gland could produce the vaccine protein. This would circumvent the requirement for large scale culture of viral pathogens which is currently employed. These examples illustrate how modification to mammary gland protein syntheses via transgenes can produce proteins of clinical and commercial significance.

Genetic engineering of farm animals is in its infancy. Our enthusiasm about the future is based on successes with laboratory animals and the potential for the production of large amounts of valuable protein.

The Author

Dr. Jeffrey Turner, a native Nova Scotian who received his graduate training at the University of Illinois, has filled a regular faculty position with the department. With particular expertise in physiological chemistry and molecular biology, he has just received NSERC funding to establish bovine mammary cell lines in culture which will facilitate the study of lactation *in vitro*. His contribution to teaching includes Biochemistry II, an important

Progress Report on the Use of Bovine Somatotropin

by Professor Elliot Block
Department of Animal Science

About this time last year I discussed with you the advent of bovine somatotropin; a natural hormone produced by cows that can now be produced by genetically engineered bacteria that when injected back into cows causes an increase in milk production. We have been testing various forms of somatotropin for safety and efficacy and would like to discuss some of these findings with you.

Before discussing the results with cows the question always arises: is the milk produced by somatotropin-injected cows safe to consume? Milk normally contains somatotropin as it is produced by cows; cows treated with somatotropin produce milk with no more somatotropin than they would without treatment. Even if milk contained high levels of somatotropin, it would be 100 per cent safe to consume because:

1. Bovine somatotropin is specific for cows; it had no activity when it was injected into humans, rats, monkeys, dogs, or cats;
2. It is a protein. When you consume it by mouth it is digested like other proteins, rendering it inactive; for this reason it must be injected into cows because there is no activity if it is fed;
3. Even if somatotropin escapes digestion for some reason, it cannot be absorbed by the intestine as it is too large a molecule;
4. If the above reasons are insufficient to convince you of its safety for human consumption, pasteurization of milk destroys somatotropin because it is heat-sensitive.

Our trials are, and have been designed, to test if long-term use of somatotropin is safe for cows; if it, in fact, works to increase productivity; to determine how it works, and to determine if there are any side-effects from its use. Over the past four years we have been conducting multi-lactational experiments funded by both governmental and private sources to test somatotropin. Because of our contractual arrangements I cannot give further details on product description for a few more months; however, we have been testing daily as well as long-term injections (up to a month) produced by a few different compa-

nies, and I can discuss the average results obtained thus far.

Milk Production

Milk produced per cow per day over the entire lactation increased by four to six kg per day depending on the dose of somatotropin. A lower dosage resulted in the lesser increase, the higher dosage in the higher increase with no further increase in production above this dose. These increases in production represent a 17 to 24 per cent increase for the entire lactation. The actual response on any one day depends also on the stage of lactation with cows in early, mid and late lactation responding by 0-4 per cent, 18-28 per cent and 25-40 per cent respectively (dose dependent), with the average at 17 to 24 per cent. Milk fat, protein, lactose, and minerals percentages did not change because of treatment. However, because injected cows produce more milk, the amounts of protein, fat, lactose, and minerals produced per day were more than by non-injected cows.

Milk Composition

I have already stated above that the percentages of milk components did not vary in milk. Just as important, however, is the composition of the milk proteins and fat from the standpoint of cheese, butter, and yogurt production. We have analyzed milk from injected and non-injected cows for an entire lactation and found that neither the types of protein nor fat (fatty acids) change due to somatotropin. This is an extremely significant finding because it means that somatotropin increases the capacity of the entire mammary gland to secrete milk and milk components equally.

Feed Intake and Efficiency of Milk Production

Total feed intake increased from two to six per cent in injected cows. This is a long-term effect in that we were only able to observe an increase in feed intake commencing eight to 10 weeks after we first observed the increases in milk production. Because total feed intake did not increase as much as milk production,

the efficiency of energy intake transformed to milk increased with somatotropin. In fact, injected cows showed up to a 15 per cent improvement in efficiency of feed energy transformed to milk (efficiency measured as kg of milk per Mcal (unit of energy) of energy intake \pm energy in body weight gain or loss).

Animal Health

At this point in time we have not found any adverse effects of somatotropin on health. The incidences of mastitis, ketosis, anorexia, fatty livers, etc., have not increased (or decreased) due to injections. Furthermore, when we examined chronic mastitis, somatic cell count (subclinical mastitis) and quantity of milk discarded because cows were treated with drugs for various ailments, we found no differences between injected and non-injected cows.

Reproductive Performance

When we examine parameters such as days open (days not pregnant), number of breedings per conception, and conception rate, there were no significant differences caused by injections. However, there appears to be a tendency for injected cows to be "open" for a few more days and to require an average of 1.2 more breedings per conception. This is probably more related to the higher milk production of injected cows rather than to somatotropin, as we know that higher producing cows are generally more difficult to breed back (especially when they are at their peak of lactation). We have also monitored pregnancies of injected cows and found no changes in abortions, stillbirths, or size of the calf at birth due to somatotropin. The calves born from injected cows grow normally and reach puberty at normal ages. This is expected since somatotropin does not cross the placenta from mother to fetus. We are now in the process of determining if somatotropin causes any changes in the hormones of reproduction.

Work in Progress

Aside from investigating reproductive hormones, we are also investigating other

potential changes in the hormone profile of cows (insulin, thyroxine, cortisol, etc.) as well as in general metabolism (i.e., blood components). There are also projects underway to try to determine HOW somatotropin actually works. You must understand that we do not yet know how somatotropin causes this improved production performance.

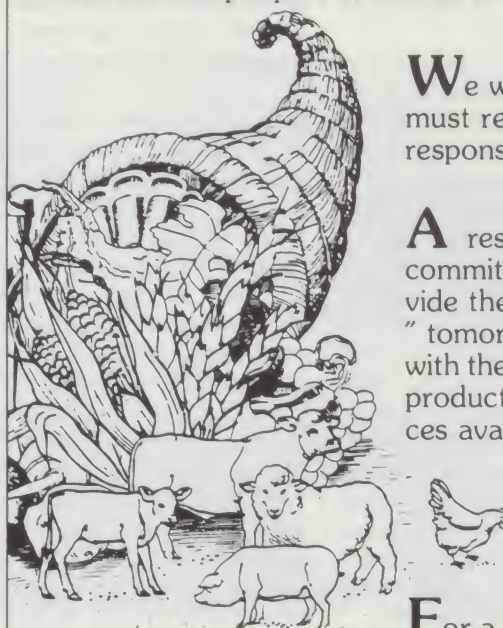
At this point in time we have shown that somatotropin works to increase milk production, is safe for use around humans, and is safe for cows. We need to conclude our work on safety and on mode of action before completing our picture. It is safe for cows even to the point of poorly managed and fed cows in that these cows simply do not respond to injections and the only thing hurt will be the farmer's pocket.

There are always two sides to every story. Even if we find somatotropin completely safe and efficacious, we must ask ourselves eventually if quality of life will be affected. Our supply of milk is in fairly close accord with consumption. Therefore, the use of somatotropin will affect a farm, where management will permit, to produce the same amount of milk with fewer cows or more milk (necessitating purchase of quota) with the same number of cows. How will this affect the producer's quality of life and/or ours? Will it cause anything to happen within agriculture that would not happen anyway? There are no answers to questions like these, but we must search for them by evaluating all possible scenarios within the limits of our knowledge. We feel it is our responsibility as professors and researchers in agriculture to supply as many of the answers as is possible with regard to somatotropin's use and biological effects, so that we can approach these more esoteric questions in an informed manner. We are certain that this is a more logical approach than to approve or disapprove of any concept on pure emotions alone. As our research progresses, we will keep you informed through this and other publications as to our findings on somatotropin for dairy cows.

"...farmers, therefore, are the founders of civilization..."

(Daniel Webster, On Agriculture, Jan. 13, 1840)

Today, Canadian farmers carry on this proud heritage. They provide this nation, and the world, with an abundance of essential foodstuffs – and have helped create for us a quality of life that too few peoples of this earth enjoy.

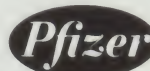


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Microcomputors on the Farm: the DHAS Approach

by Denis Marchand¹, Robert Moore², and Jacques Jalbert³

In aiming to give the best service possible to Quebec dairy farmers the Dairy Herd Analysis Service (DHAS) is studying the possibility of using portable computers on the farm on test day to collect the input data and generate on-farm reports. With the reports produced on the farm, the DHAS field staff will have the opportunity of checking the input data and discussing the output recommendations with the dairymen immediately. This should allow producers to make more timely management decisions.

This project is a logical continuation of the steps taken to provide more information and services to producers on test day. In 1979 the DHAS technicians started using the Texas Instrument TI-59 programmable pocket calculator. Its programs were used to compute feeding and certain finance-related information. However, each program required many physical manipulations leaving little time for interpretation. In 1986 the Sharp PC-1350 pocket computer replaced the TI-59. With this machine the programs are all stored in the computer memory and are accessible by calling the master program. This offers a menu which permits the user to choose the program to execute. The increased speed and ease of operation permits more factors to be considered in the programs, but any reports to be left on the farm must be manually generated.

During the summer of 1987, DHAS started a project to study the use of portable computers by the field technicians. The hardware being used is the Toshiba T1200 with a 20 Meg hard disk drive and the Diconix 150 printer. To fully understand some of the impacts that a portable computer may have on the whole system of processing test day data, one must understand how the system works today. This is illustrated in Figure 1.

The first and most important step is to collect the data on the farm. This job is carried out by the field technician or supervisor who ensures that the required information is written on to the barn sheets. Also, the supervisor is available to discuss the previous results and their interpretation with the dairyman. The milk samples and data are sent to the DHAS laboratory for several stages of processing before the test day reports are actually printed and mailed to the producers. The producer should receive his report approximately seven days after test day.

It is on the farm, when the supervisor is present, that timely discussions can be held in relation to current herd management. The goal of the project is to investigate the impact of providing a more appropriate tool to allow the DHAS supervisor to perform this task. Further, it will be possible to generate management reports that will be useful in managing the herd until the more complete reports can be processed and returned to the farm.

In order to do this the test day data will be entered into the portable computer by the DHAS supervisor and then partially edited right on the farm. Thus, more errors can be detected and corrected on test day right at the data source. Once the data are entered, the field supervisor will be able to generate the reports requested by the producer and respond to any questions concerning them. The dairyman will have the opportunity to select only those reports that he wants. Additionally, some programs will allow the producer to set his own specific management parameters instead of using the default values applied to all herds.

The data entered on the farm will be ready for processing by the central computer upon

arrival at DHAS. This should have the added benefit of decreasing the turnaround time for the complete farm reports. In the long term the reports generated at DHAS and then mailed to the dairyman may change as a result of the reports that can be left on the farm on test day.

Phase I

During phase I the specifications for the personal computer were defined and the software was developed and tested under field conditions. In March testing was started by three DHAS technicians in the La Pocatiere region using 60 herds already on the DHAS program. The data are being collected in the usual manner, then entered into the PC with some reports being generated on the farm. Currently, these reports include a detailed list of cows with recommendations of quantities of concentrate and protein supplement to be given, total mixed ration recommendations for each group of cows in the herd, ration balancing reports, a recommended grain mix nutrient concentration, and relative feed value. Other reports generated for herd management include a list of cows to dry off within the next 50 days, cows to calve, cows to breed, cows that have been bred for more than 95 days, cows to pregnancy check, and problem cows (open for more than 120 days). An additional report presents a list of the cows with last test day milk yield, current test day milk yield, per cent milk difference from last test day, and the number of days in lactation. Following this list is a summary of cows by group of production indicating the total production of each group, per cent of total herd production, average production per cow in each group, average concentrate intake, and the average protein supplement intake of each group.

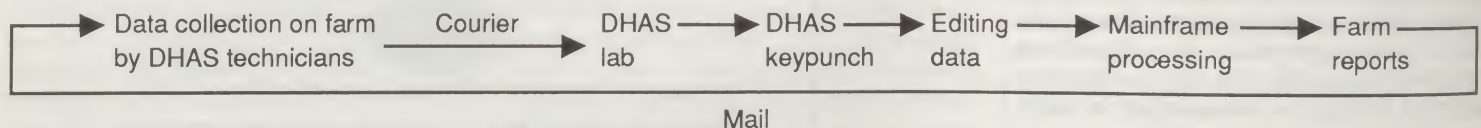


Figure 1. DHAS data collection, processing, and farm report generating scheme.

Phase II

In phase II of the project the system will be fine tuned so that the personal computer better fits the needs of both the DHAS technician and the producer. In order to accomplish this comments made during the testing carried out in phase I will be taken into account and the programs will be modified accordingly. During Phase II programs on feeding and management of dairy heifers will be developed to include growth curves, individual feeding recommendations, cost of feeding, management reports for breeding, parasite control, vaccinations, and calving preparations.

In Canada DHAS has been in the forefront of the technology applied on the farm by milk recording programs. Similar projects are, however, underway in other countries dealing with the possibility of data capture by electronic means. Countries like Italy, France, Scotland, and the United States are using either handheld or portable computers for data collection and/or partial processing and on-farm reports. A common element is that the number of cows on test determines the time required by the technician on a specific farm. It goes without saying that the optimal configuration of hardware and software needed to respond to the different objectives to be met has not been defined.

The growth of on-farm computers used by producers has been fairly slow, and forecasts indicate slow growth in the uptake of computers by producers. There are three main reasons why this has been observed. First, there does not seem to be a good understanding of what a computer can do as far as herd management and feeding recommendations are concerned. Secondly, people seem to think that computers will increase their work load and are, therefore, reluctant to adopt a computer system. The third reason given was that there were few programs available that are really well adapted to the dairyman's requirements.

The approach taken by DHAS is to provide the equipment to the technicians in the field

so that they can provide the information to the producer without him having to buy and use a computer system. The outcome of this project will determine if the DHAS staff will be able to provide a valuable service to the dairyman while saving him time and money. In the long run farmers should benefit by the use of portable computer systems in terms of getting quick information for herd management decisions by means of "action lists" generated on test day and by individual feed-

ing recommendations for every cow in the herd. These developments should optimize the use of the potential available in human resources already present among the field staff.

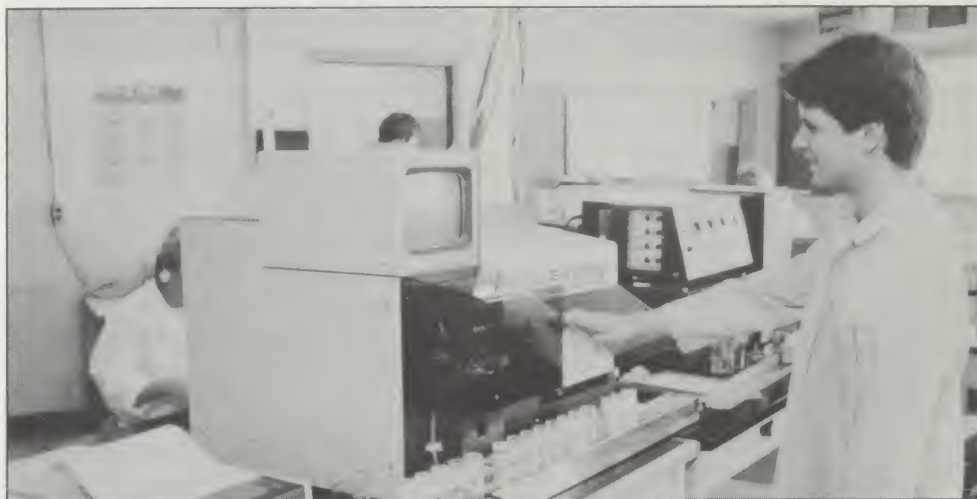
¹ Project leader

² Assistant-Director of DHAS, planning and development

³ Director of DHAS



New technology available to DHAS supervisors includes lap-top computers.



Somatic cell counting is increasing in popularity. More than 65 per cent of the herds are now requesting the analysis.

Payment for Milk According to its Composition

by Professor K.F. Ng Kwai Hang
Department of Animal Science

Component pricing of milk is of great interest to the milk producer, the dairy processor, the research scientist, the policy maker, and the overall dairy industry in general. On the average, bovine milk contains 87, 3.8, 3.5, 5.0 and 0.7 per cent water, fat, protein, lactose, and minerals, respectively. These main constituents are known to vary considerably according to breed of cow, genetic potential, region, age of cow, season, stage of lactation, health status, and feeding regime. Hence, all milks are not created equal and milk pricing formulae should be developed to reflect the nutritive, as well as industrial values of the milk. Paying for milk based on volume alone is inequitable because such a scheme does not differentiate superior from inferior quality milk. Once a milk component pricing system is in place, the milk producer will have the incentive to improve milk quality, through animal selection and management practices.

The move to component pricing has been enhanced by (a) the development of rapid and accurate methods for determining the major milk components (fat, protein, lactose), (b) the shifts of consumption patterns of dairy products, e.g. increase in consumption of cheese and low-fat milk, and (c) the change in relative costs of energy required to transport and process milk. On the other hand, several factors impeding adoption of component pricing include human nature to resist change and legal regulations related to methods of determining the price of producer's milk.

Although there are only three major components (fat, protein, and lactose) which could be identifiable as having some economic importance, there exist a large number of milk payment schemes in different countries of the world. This is due to the fact that each of those three components are either considered singly, or in different combinations with different emphasis or weights given to a particular component. The situation seems to be even more confusing to the average milk producer when he sees terms such as "total solids" and "solids not fat." Total solids refers to the sum of percentages of fat, protein, lactose, and minerals, i.e., the milk minus the water it contains. Solids not fat are

simply total solids minus the fat. Various countries have adopted different pricing formulae depending on the end-use of the milk. Historically, fat was the only milk component considered in the pricing of milk because of the importance of cream and butter in the dairy industry. This system is still being used in some countries including Canada, Chile, India, Ireland, New Zealand, and Poland. In some countries where most of the milk is sold in the fluid market there is justification for paying on the basis of total solids and the rationale is that no one constituent is any more valuable than the other. With an increasing proportion of milk being channelled for manufacturing purposes, the total solids component is split into component parts. The most readily identifiable component is milk fat, which has a much higher value per kilogram than the residual components in skimmed milk powder. Hence, this led to the development of a payment scheme from the single component of total solids to two components: fat and solids not fat. Likewise, for the cheese industry, protein is the important fraction of total solids because most of the protein, i.e., the casein part, is retained in the cheese curd whereas the lactose portion of total solids is a waste by-product. For this reason, The Netherlands and several European countries have adopted milk pricing formulae to account for protein content. Based on nutritional and end-product values, Norway has a pricing system whereby protein has a differential twice that of fat.

Apart from useful milk components, other factors have to be considered in determining the net value of milk. For example, water, which in fact is the major component of milk (87 per cent), is carefully monitored. Many countries penalize for high water content of milk which may be due to watering or the non-adulterated milk containing low total solids. The Netherlands assumes that the water content of milk is accounted for in its pricing system which pays for actual kilograms of fat and protein present in the milk. In most countries, milk containing a specified level of antibiotics is rejected. Hygienic quality of milk based on bacterial counts is also used for grading milk in countries such

as Denmark, Norway, Switzerland and Israel. Mastitic milk monitored through somatic cell counts is penalized in The Netherlands, Germany, Switzerland, Norway, and Belgium.

The milk payment system in Canada, which is entirely based on fat content and weight of milk, has remained unchanged since its inception although there have been discussions



on a more equitable system for the past 25 years. With more and more milk being used for cheese production, it would seem logical to incorporate fat and protein in the pricing formula because they are the major components determining product yield. Approximately 78 per cent of milk protein, the casein portion, is retained in cheese and our studies have shown that somatic cell count could predict the proportion of casein in the protein. Hence, the inclusion of somatic cell count in the pricing system will correct for actual casein content as well as providing an incentive to produce more wholesome milk. Lactose which is an important fraction of milk total solids is of minimum value to the cheesemaker and should not be considered in the pricing formula. Any changes in milk payment to the dairy farmer should be designed to bring them closer in line with market realization and reward producers more equitably. These changes would provide directions in which the producers should move.

Component Pricing of Milk: Genetic Aspects

by Professor Roger Cue
Department of Animal Science

From a genetic standpoint the important aspects to milk component pricing are: (1) the components considered and their prices, (2) the other components of the milk, (3) the correlations between the components paid for (1) and the other components (2), and hence the scope for genetic improvement. As has been indicated, the major components are: fat, protein, lactose, and, last but not least, water.

The prices of the milk components are important; however, they should be set according to the downstream requirements for the components, which is, therefore, a function of consumer demand (in a general sense) for such factors as liquid consumption, fat and protein, for butter, cheese, skim milk powder, etc. In setting these prices one must account for all costs - feed, management, processing, marginal costs and returns, as well as changes in efficiencies at all levels of production, be it on the farm or in the processing plants. The point of these comments is not to indicate here just how the prices should be set—that is an exceedingly complicated task—but rather to outline some of the factors that must be considered.

From a genetic standpoint, and considering the need for genetic improvement, the relations and correlations between the traits are the factors of interest and importance in determining whether and how genetic improvement can be achieved. After Gibson (University of Guelph) there is evidence of variation in milk composition among breeds of dairy cattle, with positive correlations between fat and protein, but little variation in the concentration of lactose. Thus the variations in fat and protein will permit the possibility of changes in the fat:protein ratio, for example. The desirability of such changes, however, will depend upon the use of the milk and what the ideal composition is for the particular applications, e.g., for cheese production, for butter production, etc. The coefficient of variation of milk yield, of fat yield, of protein yield, and lactose is approximately 20 to 30 per cent, which means that there is a substantial amount of variation in these traits, at least as much as for most other traits. This is

important because if there is no variation then there is no chance of making any change or progress. The correlations between all the above four traits are positive, meaning that if we select to increase one trait, then we will also increase the other traits, albeit at a lower rate. These correlations for the yields are all moderately high whilst the correlations with, and between, the concentrations, of fat, of protein, and of lactose, are all much lower;



some of them are positive and some are negative. This means that if we select to increase the yield of milk, we will increase the yield of fat and protein; however, we may decrease the actual concentrations of fat and protein, because their yield has not gone up as much as the increased yield of milk and thus the concentrations have decreased. Selection to alter the milk composition will be easiest to do if we are selecting to try and increase both fat yield and protein yield at the same time, since they are positively correlated. If we are to try and select for increased fat yield and decreased protein yield, then that will be much more difficult since they are positively correlated. Thus the evidence from genetic analyses shows that there is substantial variation and that selection can produce results, i.e., change and improvement; however, we just have to decide what changes we wish to make. Equal returns for fat and protein would, in a North American context, not be

too far from optimal. It was argued by Gibson that changes in manufacturing processes can effect changes in the milk composition much more quickly than can changes in the proportions by natural breeding and that we must, therefore, over the long-term discount such changes and instead rely upon the innate optima. This does not mean that the proportions of fat and protein that are present in the milk at the moment are the right ones, but rather that we should change the proportions to those which are optimal in terms of production given the economic returns. Thus even if fat production was to be considered deleterious, it might still be more profitable to produce milk with a slight excess of fat if it is cheaper to skim off the excess fat and to sell it rather than to selectively breed to achieve the optimal ratio.

What does this mean? It means that there is considerable variation for the milk components, both at a genetic and at a phenotypic level, that the heritabilities of the milk components are at least as highly heritable as milk yield itself. The positive genetic correlations indicate that we can select to increase production and yield although probably to the detriment of the actual percentages. Do we wish to select for these changes or for only changes in concentrations? These are long-term goals and, as suggested above, they will be dependent upon the economic incentives. However, in considering any genetic improvement in the dairy cattle population we need to keep in mind that selection in dairy cattle is a long-term operation. Even if we decide today that we are going to change our selection criteria for dairy cattle, any bull born today and entered for testing will be six to eight years old by the time that it is returned to service, and hence 10 to twelve years before we have many milking daughters and before the population begins to be changed in a significant way. Thus we need to be concerned about the direction that we should be taking for the 10 to 20 years ahead. We are already committed to the daughters that we will produce in the next five years. They are going to come from the bulls that we already have or that are just finishing their testing.

An Update on Silage Additives

by Henry Garino and Leroy Phillip
Department of Animal Science

In the late 70s as a result of an increase in the use of ensiled feeds for livestock production, a research program on the nutritive value of silage and the chemistry of silage fermentation was initiated between the departments of Animal Science and Agricultural Chemistry. It is therefore fitting to share with the readers some of the knowledge gained during the past decade.

The concept of preserving moist feeds by fermentation has long been known. The Egyptians in 1200-1500 BC practiced this technique. It came as no surprise that as energy costs of drying feeds soared during the "oil crunch," producers switched to silage-making. Silage fermentation is a complicated process and we are still searching for means to effectively control and ultimately predict the patterns of fermentation and hence the nutritive value of silage.

Principles for Making Good Silage

Before presenting some research results, we will discuss some principles of silage preservation.

The main process in silage-making is the conversion of plant sugars into lactic acid by lactic bacteria under oxygen-free conditions. Thus, if conditions are ideal for rapid lactic acid production, the pH of the ensiled feed will quickly drop to a level where biological activity ceases and the mass becomes preserved.

In order to better understand the ensiling process, a schematic representation of silage fermentation is presented in Figure 1. As the crop is harvested and brought to the silo, epiphytic (naturally occurring) bacteria proliferate and plant cells continue to respire using up O_2 and producing CO_2 and heat. As oxygen levels decline, ideal anaerobic conditions for lactic acid fermentation begin. There are two types of lactic acid fermentation: homofermentation and heterofermentation. The former is preferred since it involves a direct conversion of glucose to lactic acid, but it is difficult to obtain since it requires total lack of oxygen and dominance of

homofermentative lactobacilli which are not as tolerant to acetate as the heterofermentative species. Thus, homofermentative organisms are active at the initial stages and heterofermentative species eventually dominate the fermentation.

Another type of fermentation may occur under the influence of clostridial organisms; this type of fermentation is extremely undesirable. Clostridia will proliferate under aerobic conditions, particularly when the ensiled mass is too wet. These organisms will ferment lactate to butyrate and degrade protein to ammonia and amines resulting in a net loss of protein and energy in the silage. The end products of clostridial fermentation are poorly utilized by ruminant animals.

The best way to avoid undesirable fermentation is to promote a lactate fermentation. A few guidelines that producers can follow to ensure a good fermentation and thus optimize nutritive value of silage are related to the stage of maturity of the harvested crop, moisture content, particle size, water soluble carbohydrate content (WSC), condition of the silo, and "feed-out rate."

Nutrient digestibility of silage is affected by stage of maturity of the harvested plant. McCullough points out that optimum stage of maturity is a trade-off between yield/hectare and digestibility. He recommends harvesting

1. corn for silage - early dent of the grain
2. small grains - late boot or early heading
3. grasses - early heading
4. legumes - early bloom

The dry matter content of the feed to be ensiled is critical since it can cause: i - undesirable clostridial fermentation; ii - overheating and deterioration of the protein fraction, and iii - losses through leaching of valuable nutrients. Most crops harvested between 28-38 per cent dry matter will pack well when chopped at 15-20 mm, thus favouring oxygen-free conditions and minimizing leaching or overheating.

Water soluble carbohydrates are the main substrate for lactic acid production; crops that contain low levels of WSC will not be properly ensiled. Levels of 6-8 per cent of the dry matter are generally regarded as the minimum requirement. To ensure enough WSC, wilting to increase dry matter content and/or addition of carbohydrates (molasses, grain, whey) at ensiling may be a useful practice.

A variety of storage systems for silage making have appeared on our rural landscape. Tower silos, bunker silos, pit silos, silage bags, and heap silos can be frequently found on farms. They have advantages and disadvantages when related to each other, but they are basically chosen according to three criteria: 1) cost; 2) loss in feeding value, and 3) practicality in feeding out. If the silage is made following the stated precautions concerning moisture, particle size, oxygen exclusion, WSC content, the risks of losses are minimized and thus cost and practicality become the main features in choosing a storage system. Maintenance of silos is extremely important to avoid potential losses in nutritive value.

Once a silo is opened, the mass in contact with air will undergo secondary fermentation as a result of mould and clostridial growth. It is, therefore, imperative, particularly in warm seasons, that sufficient material be removed on a daily basis to avoid spoiled silage.

Commercial Aids to Fermentation

Agribusiness companies have been very active in research and marketing of aids to the fermentation process. A variety of products have appeared on the market aiming at either preserving or enhancing the fermentation of the stored crop. Among the former, acids for direct acidification and rapid drop in pH have been successful in discouraging undesirable fermentation patterns and losses in dry matter recovery and protein deterioration. Anhydrous ammonia has also been used as a successful mould inhibitor. The main drawbacks in this category of additives are the

problems related to the actual treatment both for the person applying the chemical as well as for the equipment. This had led commercial companies to direct their attention to fermentation stimulants which are not hazardous to apply. The majority of additives at present contain bacterial inoculants and/or substrate enhancers. Several companies have developed specific lines of "super lactobacilli" which, when added to the crop at silo-filling time, ensure the presence of sufficient desirable organisms with higher levels of activity to direct the fermentation towards successful completion. Sugars and minerals needed by fermentation organisms are sometimes added to the preparation. Enzymes to increase sugar levels from complex carbohydrates also are used to increase available substrate. Some additives will also contain antioxidants and/or mould inhibitors to aid in reducing spoilage.

Research Findings at Macdonald College

The initial efforts to establish the efficacy of aids to fermentation by B. Baker, I. Alli, and H. Garino in the late 70s were directed to the chemical changes occurring in laboratory scale silos and relating them to animal responses to treated silage rations. The chemical studies with laboratory silos showed that additives had a beneficial effect on corn and alfalfa in terms of reducing heat production in the early stages of fermentation as well as

increasing the rate of lactic acid production and reducing dry matter losses during storage.

The use of lactobacillis cultures on corn silage and alfalfa silage proved to be beneficial on two beef cattle trials. With corn silage, addition of Sila-Bac® resulted in higher dry matter recovery in 12' x 30' silos as well as better weight gains and feed efficiency. With alfalfa silage Garino et al reported higher dry matter recovery (93.4 per cent vs 80.2 per cent) and higher aerobic stability for Silo-Bac® treated alfalfa but no increase in animal productivity.

Another additive, anhydrous ammonia, was tested by Philip and Garino as a preservative and supplementary source of protein for high moisture ear corn for beef cattle. The anhydrous ammonia had clear effects in reducing protein breakdown in the silo; it also resulted in increased feed intake and rate of gain in calves when compared to untreated ear corn. From a practical standpoint, however, treatment with anhydrous ammonia is hazardous and should be handled extremely carefully.

Lactation trials with dairy cattle fed treated hay (Haypro®) and alfalfa haylage (Silage-Pro®, a multiple substrate additive) by Block and Garino showed that cows fed treated forages had considerably less body weight loss in early lactation and were averaging 2.7



Henry Garino, I, and Leroy Phillip at the college farm.

kg more milk per cow per day by weeks 11-16. A second lactation trial with Silage-Pro® treated alfalfa haylage and high moisture ear corn also showed a beneficial effect of treating haylage in terms of higher milk production, feed intake, and a reduction in body weight loss for cows in early lactation.

Treatment of ear corn did not have an impact on animal productivity. It is a well-known fact that some crops, particularly corn, with a high level of WSC ensiles well compared to alfalfa which has a low WSC level and a high buffering ability.

At present, trials are being conducted with growing heifers, lambs, and lactating cows to test the efficacy of treating alfalfa with two specific additives, bacterial, Ecosyl® and Sila-Bac® in a liquid form.

Research to date has enabled us to improve our understanding of the fermentation process. Proper management of harvesting, storage, and feed-out of the ensiled crop will go a long way in ensuring good fermentation and quality conservation of silage. If conditions are less than ideal, additives may be efficacious in controlling the ensiling process; they would then have the potential for improving animal performance.

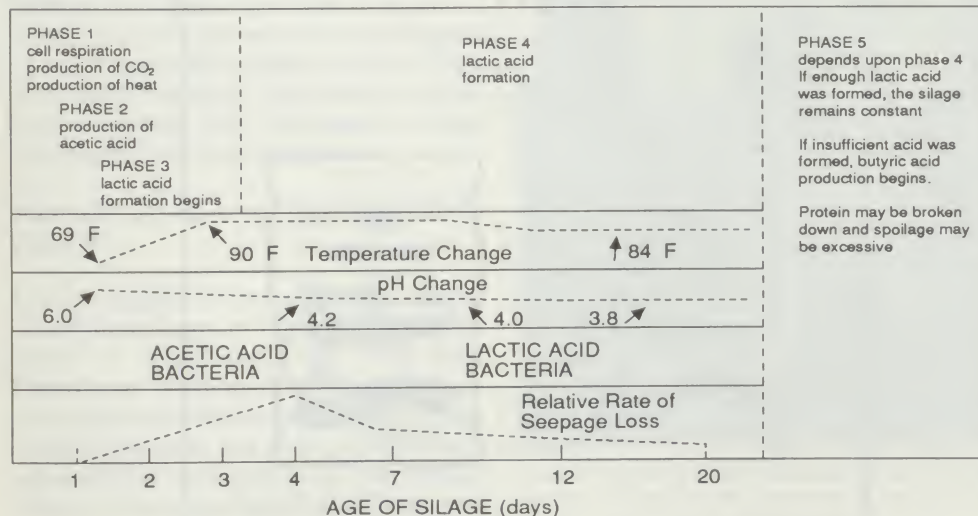


Figure 1. A schematic representation of the five phases in silage fermentation.

The Nutritional Significance of Cultured Milk and Dairy Products

by Dr. M.A. (Vic) Amer
Senior Vice-President, Science and Technology, Dairy Bureau of Canada

The role of fermented milk in the human diet dates back many centuries. Ancient physicians of the Near and Middle East prescribed soured milks for curing disorders of the stomach, intestines and liver, and for stimulating the appetite. In the early part of the 20th century, Metchnikoff noted the beneficial value of yogurt in the human diet in his famous "Theory of Longevity". Some of the first attempts to treat gastrointestinal disorders were made with yogurt containing *Lactobacillus bulgaricus*. Since that time, many research reports have tended to support Metchnikoff's theory that toxic substances produced by harmful bacteria affecting man's health and longevity could be combated by lactobacilli. However, it has been realized that not all lactobacilli are capable of surviving in the human intestinal tract, including Metchnikoff's *Lactobacillus bulgaricus*. The greatest therapeutic effects appear to be derived from species such as *Lactobacillus acidophilus*, which can establish itself in the intestinal tract. It has been shown that human volunteers fed *L. acidophilus* exhibited low coliform counts in the gastrointestinal tract. Individuals who were experiencing intestinal discomfort in the form of diarrhoea recovered rapidly when fed *L. acidophilus*.

During the growth of lactobacilli in milk, certain modifications of milk constituents occur, primarily by the fermentation of lactose and the enzymatic degradation of proteins and lipids. Bacterial cultures obtain their nitrogen requirement from milk proteins since there is insufficient non-protein nitrogen in milk to support their growth properly. Consequently, the partially degraded milk proteins can be digested and absorbed more readily than unaltered proteins in nonfermented milk. Furthermore, certain metabolites produced in fermented milk have been claimed to have an antagonistic effect against food-borne pathogens, which, if allowed to enter fermented milk, are inhibited by these metabolites and thus prevented from having a damaging effect on the host.

Metabolites in fermented milk products have also been claimed to affect blood lipids.

Constituents such as orotic acid and hydroxymethyl glutaric acid have been suggested as hypocholesterolemic factors. It is reported that American adults fed a diet containing large quantities of yogurt showed significant reduction in their serum cholesterol. The work with the Maasai tribesmen has generated considerable interest in the ability of milk products, in particular yogurt, to reduce blood cholesterol.

Researchers studied the beneficial effect of Lactobacilli and noted that populations at high risk for colon cancer have intestinal microflora with increased ability to metabolize steroids and to hydrolyze glucuronides when compared with individuals at low risk. A diet containing a large population of viable

L. acidophilus significantly lowered the activities of fecal nitro-reductase and beta-glucuronidase in meat-eating individuals.

Nutritionally, protein in yogurt is considered to be more readily digestible than protein of milk used for its manufacture. Yogurt contains more than twice the amount of free amino acids when compared with unfermented milk. The beneficial effect of yogurt in treating gastric disorders is attributed to the relatively high content of easily digestible protein.

Lactic acid bacteria are known to possess the enzyme lactate dehydrogenase (LDH) essential for the production of lactic acid in fermented milks.

...continued on page 24



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Rudi Dallenbach: At the Right Place at the Right Time

Rudi Dallenbach, Macdonald College Farm Director, claims that it has been by sheer good fortune or by accident that he has been at the right place at the right time for some of the most eventful episodes in his life. Most recently it was for the conception and completion of phase I of the new teaching and research facilities at the farm. With phase II ahead and suggestions for reorganization of the farm to be implemented, Rudi feels strongly that a new director should have some input in these implementations. Thus, at the end of August, a year prior to his regular retirement date, he is stepping down but, knowing Rudi, he won't be far away from the college for too long a period of time. He's been associated with Macdonald for some 40 years of his life, and he doesn't intend that association to end now.

Born in Berne, Switzerland, Rudi grew up on a large government farm that his father managed. He went through school to agricultural college, commercial college, and leadership training programs before deciding to do some travelling. He spent five months in England, then came to Canada where he says he "got hooked and decided to stay," a decision he has never regretted. Rudi came in the spring of 1948; that fall his future wife, Heidi, whom he had not met in Switzerland also came over.

Rudi has had an active and varied career since coming to Canada and has contributed greatly over the years to improving the quality of life for rural Canadians. Rudi recently discussed his interests, his concerns, and his long association with Macdonald College with Hazel Clarke for the Journal.

What did you do when you first came to Canada?

I was manager of three different farms: Wendybrook Farms in Sweetsburg, Holbeck Farms in Kingsville, Ont., and then Knowlbrook Farm in Knowlton. I have always been interested in people, particularly in adult education, and while in Knowlton I was invited to participate in the Farm Radio Forum. I think that Farm Radio Forum was

the one factor that shaped my life more than anything else. I was immediately involved in the local community, in the county, then in the provincial organization and, eventually, at the national level as an executive member. I got to know people from across Canada. It was a wonderful opportunity for a newcomer.

The Resources for Tomorrow Conference in the early 60s awakened my interest in conservation as did the subsequent development of the Agricultural Rural Development Act (ARDA). I actively participated in the formation of the Brome County Rural Development Association and served as its president for a number of years.

What took you to P.E.I.?

My activities in Brome County and knowing people like Alex Sim, who was a consultant with the ARDA administration. I travelled around Prince Edward Island for six months to find out how people felt about government programs and new developments. There was a comprehensive agricultural development plan in the formative stages, and I was asked

to organize groups to see if they would participate. This got me involved with people. What I enjoy more than anything else is to sit in somebody's kitchen or in a town hall and talk with a group of people. Exploring new opportunities. What else can we do? How can we bring about change? How can we develop those who have latent leadership qualities but are too reserved to make use of their talents? Through that six-month study I learned that there is a great deal of talent in rural Canada; people who can do all kinds of things if given an opportunity to develop their ability, and this is how the community school system developed in Prince Edward Island. It was not new to Canada — we had it throughout the Eastern Townships operating from Macdonald College. Prince Edward Island was just ripe for this kind of movement.

I have read that you are the "father" of Prince Edward Island community schools.

In 1965, with the help of the Prince Edward Island Rural Development Council, which was formed while I was there, and an interdenominational church association, we organ-



During construction of the new facilities, Rudi Dallenbach, l, Drs Roger Buckland, Dean of the Faculty, and Bruce Downey, Chairman of the Department of Animal Science, compare notes on the progress being made.

ized the first community schools: one where the clergy took the initiative, one where the co-operative movement took the initiative, and a third where the Board of Trade took the initiative. Community schools have operated ever since with over 5,000 people participating this year. I have returned a number of times for anniversaries and seminars, and it has been a real pleasure to see something like this that can benefit so many people.

Everyone can learn something by participating in some kind of activity. It doesn't matter what it is — dancing, singing, dressmaking — it helps develop people. If there are 35 to 40 active community schools, then there are the same number of people exercising leadership as presidents or group leaders. The real benefit is that it is not a formal course in self-development. The community schools have made an impact on Prince Edward Island, and I hope they will continue to grow.

Is this where you learned about the Women's Institutes?

No, I knew them from my Farm Forum connections as they were closely associated with that group. Their offices were here at Macdonald and we met here as well as in the country. When I went to Prince Edward Island I was told that I would have to look for problems, but I didn't. I looked at success stories and these are, of course, to be found very often in rural Canada where there are women's organizations. The WI played an important role in the development of the community schools, and women who were active in WI participated in leadership roles in the Rural Development Council. Many of the ingredients in the community schools are what the Women's Institutes have been doing for years.

I think you have a soft spot for the Island.

Yes. My children went to a small school there, and this completely changed their idea that everything had to be big. They made some of their best friends on the Island, and I probably have as many friends there as I have in the rest of the world. We keep in touch with



Rudi offers congratulations to this year's Grand Champion Showman at the Livestock Show, Caroline Beaulieu, daughter of herdsman Gordon Beaulieu.

Islanders. I try to find out which students come from there. Sir William came from Prince Edward Island, and the Farm Centre there was financed by the Macdonald Stewart Foundation and is very much appreciated. It has become a focal point similar to Macdonald College and our community.

When did Macdonald College enter your life?

I first came here as a partial student in 1949, and I seem to have been continually involved with the college ever since. I had the opportunity to build the first milking parlour and the first loose housing barn in the province and these "firsts" brought a lot of staff and students out to the farm in Knowlton. As well, farm organizations in the Eastern Townships needed speakers and staff from Macdonald came out. Some of them stayed at our place so we got to know them.

Back in 1959 I spent many days taking the Farm Forum-Macdonald College tent to the fairs in the Eastern Townships, the Chateauguay Valley, and the Laurentians.

I felt I got very close to Macdonald College and am one of the many who have really experienced the spirit of the college. Macdonald was more than this campus — it was the teachers in the Knowlton High School and the many agronomes and ag reps I had a chance to meet. Everybody seemed to come from Macdonald and had a feeling for Macdonald.

Dean George Dion asked me to come to work at the farm in the late 50s and again in the early 60s but it wasn't until 1966 that I came to Macdonald as Farm Director. I did this on the condition that I could return to Prince Edward Island whenever necessary, and for the first six years I returned fairly regularly every winter to give seminars and in the summer to go camping.

Some memories of your early days at Macdonald.

For many years I had the pleasure to work with Jim Houston, who was the Farm Manager prior to my arrival. His remaining on the farm made it very easy to work myself into the job. I also was fortunate to work with a

very loyal staff who were and still are prepared to support the operation of the farm. The interest of the academic staff, and the help I received in the development of the farm were certainly much appreciated.

A sympathetic dean like Dr. Dion, who was prepared to assist financially, led to the tile-draining of the farm, the construction of new silos, and a number of rebuilding programs. As a result productivity increased very rapidly.

What other activities were you involved in?

In the 70s there were a lot of people who wanted to go back to the land, and I enjoyed teaching the evening course "Is Farming for You?" I met a lot of people with an interest in agriculture who were not — at least at first — directly involved in it. One couple who readily comes to mind is Stuart and Emily Brown. They impressed me with the philosophy of combining business with the pleasure of rural life and with giving a helping hand to young people. Stuart Brown purchased a purebred calf from Macdonald College to give to a young neighbour so that he could show it at the fairs. The Browns have continued to support young people by providing a large number of scholarships for students here at Macdonald. I have been fortunate to meet many such people but I will not name names in fear of leaving someone out.

Another boost for me was being asked to teach Farm Management to the Diploma students which I did for two years. Probably one of the biggest challenges I have faced here was preparing the course material, and the discipline of teaching a formal course was exactly what I needed. I tried to organize my courses ahead of schedule and make them of interest to the students. I don't know whether I was successful, but I enjoyed it immensely.

I also enjoyed invitations to speak to groups and to participate in seminars. For three years I participated in conferences in the United Kingdom, Germany, Holland, Switzerland, and Austria where I talked about Canadian

agriculture to people who were coming to this country.

One of the highlights of my career came in 1978 when I was granted a six month's leave of absence to visit research stations to find out what was new and how they were being operated. Heidi and I travelled through Holland, Germany, Austria, Switzerland, and France and then across Canada and through the United States. We visited 17 research stations and met with the people running them. One interesting point that makes us different from the research stations I visited is that we have always felt that our facilities were to be used, and a researcher here can start on a project at the farm without having a great deal of money. This is extremely important, particularly when you have many young staff.

When the university decided to construct new buildings at the farm, I got very involved in planning and was part of the group that developed the new facilities. We can be very proud of our new building and of the reconstruction of the old barn. I hope that within a short period of time the new piggery and poultry sections can be started and these, together with the present facilities, are going to make a tremendous difference to Macdonald College. I have visited many institutions and I can honestly say that there is no other where the farm is as close to the academic facilities. Our farm is in an environment of tomorrow as we are farming on the fringe of an urban area. We are involved in the whole community and within minutes we can either be in downtown Montreal or in the Morgan Arboretum.

You've had an open door policy at the farm.

Every year we have between 15 to 25,000 school children visit the farm and learn how important farming is. You don't find that aspect of teaching the very young at many research stations. For years manpower courses were given at Macdonald College, and the Extension Department brought in many different groups of people. Now,

credit must go to the DHAS supervisors and management personnel who bring in busloads of farm groups to see the new facilities as well as to visit the DHAS offices and labs.

Over the past 22 years 134 students have worked on the farm and given tours. Many have become excellent public speakers as well as good organizers, and they often come back to tell me that they can stand up and give a talk because they had to do it so many times at the farm.

Are you concerned about the future of rural Canada?

I am still very concerned about rural Canada. Farming is becoming increasingly more productive and, with biotechnology on our doorstep, tremendous changes are going to take place. These changes will probably mean a reduction in the number of farmers and this bothers me because, as we depopulate rural Canada, the country is going to suffer. Villages are already disappearing in the West and will here as well. When I came in 1948 there were 64,000 dairy farmers in Quebec; today there are 18,000. What will happen in the next 40 years? How many cows will we see pasturing in our province? How many hectares of land will be cultivated?

What next, Rudi?

Heidi and I plan to do a little travelling in Europe, and after that I want to do some work on my home in Senneville. I was a director for the SPCA, and I might get back to working for them. I hope to continue as an active member of the Quebec Farmers' Association and the Montreal Farmers' Club. I am going to do some consulting work, and I hope to find something to do for the college. For one thing, I have been planting trees for most of my life: in the Townships and here at the farm. I hope to continue doing this and other things. We have a great young staff at present, and I can see Macdonald College making a tremendous mark in the decades to come. I want to be a part of it.

Mac International

Animal Science Goes Abroad

by Professor Bruce Downey, Chairman
Department of Animal Science

With the world's population increasing at a rate of 80 million people per year, mostly in countries that can least afford it, we in the developed countries have a stake and a responsibility in assuring the economic, environmental, and social well-being of the third world. After the latter are in order, individual countries are likely to find effective population control more feasible. Agriculture is central to the economies of these countries, and the rearing of animals is one of its important components.

The Department of Animal Science at Macdonald College has had a long history of education and technology transfer at the international level and this interest and involvement is still being maintained. Eight different countries in addition to Canada are claimed as the birthplace of teaching and research staff in the department, and approximately one-third of our graduate students are non-Canadian. Professor Eugene Donefer is the department member with the longest standing commitment to international agriculture, and this culminated in his appointment as Director, McGill International, in October 1985.

Research conducted over several years by Dr. Donefer and others in the Department of Animal Science resulted in support from the Canadian International Development Agency (CIDA) for a project in Trinidad in 1976. Carried out over a five-year period under Dr. Donefer's direction, the Sugarcane Feeds Centre (SFC) project was established to determine the technical and economic feasibilities of dairy and beef production in Trinidad using rations based primarily on sugarcane derived feeds. The CIDA contribution of \$5 million was used (among other things) to construct a 500-head cattle feeding unit and other supporting SFC buildings. In addition, a major land rehabilitation project (under the direction of Dr. R. Broughton of the Department of Agricultural Engineering) initially resulted in non-agricultural land producing sugarcane yields higher than the country average. Over the five-year period, several thousand cattle, originating from young dairy calves purchased from local small-scale milk producers, were raised for

the local beef market and a system was established which demonstrated that animal production was possible utilizing local feed sources as compared to the more common practice of importing most animal products. Dr. Elliot Block, from our department, devised a series of rations for dairy cows which were tested in the SFC dairy unit and demonstrated that sugarcane could constitute an important dietary component.

After the end of the CIDA-McGill involvement in 1981, the SFC operation was taken over completely by the Government of Trinidad and Tobago and is in full operation today as a major Caribbean research and demonstration centre of applied animal production systems. The continuing success of the SFC is due to the dedication of its staff, all graduates of the University of the West Indies in Trinidad, and mostly hired during the period of the CIDA-McGill involvement. The project illustrates the ability of young agricultural graduates from the Caribbean region to make major contributions to local food production, if given the resources and the responsibility.

Jamaica

More recently, a two-year collaborative project between McGill University and the Sugarcane Industry Research Institute of Jamaica was designed (and supported by CIDA) to formulate and test cattle and sheep rations containing by-products of the Cane Separation Process. The main by-product used was sugarcane pith which is a fibrous low-quality feed. With treatment and added supplementation, its nutritive value is increased. It was hypothesized that it could make a significant contribution to cattle and sheep rations both technically and economically.

Involving Drs. Block and Donefer and Mr. Garino, the research was conducted in two phases. Initially, a variety of rations based on pith and molasses to assess the effect of alkali treatment of the pith and supplementation with non-protein nitrogen was tested. This work was carried out with sheep in digestibility cages.

The second phase involved a selection of the most promising rations from phase 1 to be tested in cattle and lamb growing trials.

This work was performed at the Bodles Research Station of the Jamaican Ministry of Agriculture by Anne-Marie Giordano, an M.Sc. student in the Department of Animal Science. The results obtained revealed that rations containing 78 per cent cane by-products supported very reasonable performance levels in cattle and lambs. Adoption of such rations commercially would lower feed costs to the producers and reduce the need to import expensive feedstuffs.

El Salvador/Guatemala

Native swine production systems is the subject of a project directed by Professor Dr. Eduardo Chavez in El Salvador and funded by Canada's International Development Re-



Native "Chinese" boar in El Salvador.

search Centre (IDRC). Started in July 1985, the project's objectives included the determination of biological characteristics of the native swine, e.g., nutritional requirements and reproductive capacity, the study of present production systems and the influence of socio-economic and environmental factors, and the training of Salvadorian personnel. To date, a variety of locally available feedstuffs have been evaluated chemically as well as nutritionally in several growth trials. Growth and reproductive performances were measured in the same and other studies as was sow milk production so that optimum weaning time might be established. All experimental work is being conducted with Ministry of

Agriculture and Livestock Production personnel, animals, and facilities at Sonsonate, El Salvador. Laboratory analyses have been carried out at Macdonald College and at INCAP, Guatemala City, Guatemala.

Dr. Jorge Ventura spent four months at Macdonald between July 1 and October 31, 1986, as part of the training component of the project and a second trainee is scheduled to arrive in 1988. Dr. Chavez presented a three-day short course in swine production to some 50 personnel from the Ministry of Agriculture in May 1987 and it is probable that this course will be repeated.

Peru



Canadian pigs arriving in Lima under close scrutiny of local authorities.

The development of swine production in family farm-system units in Peru became the subject of another project now under way under Dr. Chavez's direction. Interest was generated in the idea when Juan Kalinowski, on leave from Universidad Nacional Agraria - La Molina, Lima, Peru, was doing graduate studies with Dr. Chavez at Macdonald. Now back in Peru, Dr. Kalinowski is the local director of the CIDA- supported project.

The program was designed for a less-developed agricultural region (Tarpoto) where the existing swine population is of low quality and where animal production is at such a low level that currently available animal feed resources, e.g., industrial by-products and other agricultural waste materials, are not being utilized. In developing family size farm-system units to produce market pigs,



Checking on "Canadian" pigs after arrival in Tarpoto (north of Lima) with Dr. Kalinowski, PhD '85, and assistant C. Levo.

objectives to be met include 1) utilization of the pig as a consumer and transformer into food of a variety of local products and by-products which otherwise contribute nothing to the food system, 2) incorporation of the idle work force into productive agricultural activity and, thereby, 3) the improvement of family income.

To achieve the objectives, facilities have been built in Tarpoto to house 125 females and 25 males (four breeds) imported from Canada in the fall of 1987. These animals will serve as foundation breeding stock which will result in the production of 2,000 weaners for distribution among farmers during the second year. Much work needs to be done, both at the Field Station in Tarpoto and at the University at La Molina, to develop appropriate management, feeding, and health care programs, and to introduce artificial insemination and a genetic improvement program. A feed distribution centre and abattoir are also required. It is anticipated that Dr. Kalinowski will receive help from farmer representatives and local Ministry of Agriculture authorities in preparing these development plans.

Egypt

The Canada-Egypt-McGill Agricultural Response Program (CEMARP) has been underway since March 1986, and Professors Bruce Downey and Flan Hayes have been involved with three cattle and buffalo projects. Funded by CIDA, the program's objec-

tive is to address small problems identified by the Egyptian Ministry of Agriculture as "bottlenecks" to better productivity. Of approximately five million cattle and buffalo (50:50 distribution) in Egypt, 90 per cent are situated in small herds (two to five animals) and are used for both meat and milk production. Productivity is low for a variety of reasons, not the least of which is the lack of an organized breeding, record keeping, and selection program. An artificial insemination (A.I.) service using frozen semen was initiated in 1984 for both cattle and buffalo and its



Balady (native breed) cow with her first generation crossbred Friesian calf in foreground; the latter is a progeny of the national AI program in Egypt.



Buffalo heifer, an offspring from the frozen semen program in Beni-Suef, Egypt.

improvement was the principal subject of Dr. Downey's input into the program since 1986.

With the help of CEMARP, nine Egyptians have received training in Canada in various aspects of AI, embryo transfer, and computerized herd management systems. Training courses were either three or six weeks in

length. Two personal computers and some laboratory equipment for semen and/or embryo handling and processing were supplied, and three frozen semen "job lines" (outlets servicing several villages) were equipped in the province of Kafr El Sheikh. Approximately 70,000 females were artificially inseminated in 1987. With trained personnel and an established AI service now in place, it is hoped that it may now be possible to implement a genetic improvement program, at least for cattle, as designed by Dr. Hayes.

Brazil

In Curitiba Professors Block and Humberto Monardes have initiated a three-year cooperative project to upgrade the teaching, research, and extension facilities at the Universidade Federal do Parana (UFPR) through the improvement of a dairy management system operated and used jointly by the University, Cattle Breeders Association (APCB), and the Dairy Cooperatives in the State of Parana.

Funded by CIDA, this project resulted from an exploratory mission to UFPR by Macdonald College personnel, an agreement of cooperation signed by both institutions (through McGill International), and a direct request by UFPR to initiate a developmental project in dairy cattle production. The Quebec Dairy Herd Analysis Service and the Department of Animal Science are participating in this project.

Last fall, two professionals from UFPR and APCB (Professors Ribas and Koehler) spent one month at Macdonald College studying and working on different disciplines related to dairy cattle production (DHAS/milk recording, dairy cattle genetics, nutrition, and management). As a result of this trip, important operational decisions have been made at UFPR and APCB. For example, a McGill computer systems designer travelled to Brazil in March 1988 to assist in the computerization of dairy management services, and some teaching and laboratory materials have been purchased to assist in the implementation of APCB and UFPR facilities. In early



Professors Elliot Block and Humberto Morandes (1 to r. facing camera) visiting with the Dean of Agriculture and the Rector of the Universidade Federal do Parana, Curitiba, Brazil.

May, several Macdonald staff (E. Block, H. Garino, J. Jalbert, and H. Monardes) will be in Curitiba where they will be main speakers at the Fourth Annual Convention of APCB, give a course on Bovine Nutrition to graduate

students and UFPR staff, give technical seminars at UFPR, meet with directors and managers of six different dairy cooperatives, prepare progress reports and plan project activities for 1988-89. In addition to the

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Lactic acid is claimed to have physiological advantages which include:

- a) Improving the digestibility of milk proteins by precipitating them in fine curd particles;
- b) Improving the utilization of calcium, phosphorus and iron;
- c) Provoking the secretion of gastric juices;
- d) Accelerating the evacuation of the stomach's contents;
- e) Source of energy in the process of respiration.

The fermentation of lactose in milk is also significant in that the consumption of cultured dairy foods by lactase deficient patients (hypolactasics) will enable such

people to enjoy the nutritional benefits of milk with little or no sign of lactose intolerance.

The scientific and medical communities have for a long time been interested in the beneficial aspects of cultured dairy products. They are of the unanimous opinion that nutritional recognition of cultured dairy products has to be disseminated to society.

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Issues in Human Nutrition

Fibre: Disease Prevention Panacea?



by Linda Jacobs Currie, University Coordinator
Professional Practice (Stage) in Dietetics, School of Dietetics and Human Nutrition

Dietary fibre, soluble fibre, insoluble fibre commercial fibre. What do these terms mean? If we're eating these different fibres, should we

be? We used to know what was meant when someone said they added fibre to muffins or cereals. Baked in or sprinkled on, it was bran - the outer layer of a whole wheat kernel. We also knew why someone added fibre: to keep the digestive tract pulsing so stools were regular as well as bulky. Newspaper articles have since assured us that there are properties of fibre that may also help prevent diverticular disease (pouches in the intestine that may collect food matter and become infected), colon cancer, diabetes, high blood cholesterol, and overweight.

What more could we ask of a food component? What is dietary fibre? Is wheat bran the only and the most effective source of dietary fibre? Found only in plant foods, dietary fibre is the plant cell wall material that resists digestion. It is a complex carbohydrate; one of the food components we are encouraged to eat more of while we eat less fat, sugar, salt and cholesterol.

There are many parts to fibre, and all have their unique action in the body. Insoluble fibre like **cellulose**, found in wheat, young beans, and apples, is known for increasing fecal bulk. **Lignin** found in older vegetables and bran cereals, and **hemicellulose** found in cereals and vegetables like beets, also increase fecal bulk and, therefore, decrease the time food residue spends in the intestine. This is the laxation effect we are all familiar with.¹ Citrus fruit, apples, and carrots contain soluble pectin which slows the absorption of glucose. **Gums** found in legumes, oats, and barley have demonstrated a cholesterol lowering effect.² Finally, the fermentation of dietary fibre as our bodies continually try to break it down is thought to change bowel acidity and thereby protect the bowel wall from invasive diseases. All these components are not found in every plant food, but all contribute to total dietary fibre intake.

What kind of fibre should you eat to get the best protective or disease prevention effect? Health and Welfare Canada has recently is-

sued an information letter which re-emphasizes the need to think of foods not just fibre. Why? Because for good health we need soluble and insoluble fibre and each of their dietary fibre components. That means choosing from a variety of dietary fibre sources. For example, oat bran, pinto and navy beans contain a gum which, when combined with a lower fat diet, helps both lower blood cholesterol and regulate insulin needs in people with diabetes mellitus.² Does this protective action require five oat muffins and a giant bean salad per day? No! It would be difficult to maintain such a diet. Rather, consider replacing some meat intake with protein-rich beans, peas, and lentils to achieve both the lower fat intake and increased soluble dietary fibre. Remember that wheat bran is the dietary fibre which protects against constipation, so you'll want some of that, and pectins, and the hemicellulose. Each has a role!

That's why the current intake of 10-20 grams of dietary fibre per day is probably not enough, and it is recommended that we increase our intake to 25-35 grams/day.^{3,4} How? Well, a vegetarian easily exceeds this target, so you won't have to change your habits to that extent. The "High Fibre Menu" gives you one example of food choices which will increase your dietary fibre intake.

What about fibre supplements? Fibre pills, crackers, and cookies abound in pharmacies and grocery stores. As with most supplements, they may have a place, but a modest change to a varied and balanced diet is probably easier and more effective in the long run because of all the types of fibre we obtain from our varied food supply. Also, as with any food, the overconsumption of dietary fibre is undesirable. Increase your fibre intake gradually so your digestive system and your palate can adapt, and then you'll avoid the bloating and flatulence that could result if you're overzealous and go from 0 to 30 grams in one day!

Does dietary fibre prevent disease? The National Institute of Nutrition presents a cautious conclusion to its investigations on this question: specific components of fibre, rather than total dietary fibre, are potentially protective but there is not enough evidence to say that - or how much - fibre will decrease colon cancer risk. So, while there is some

specific role for individual dietary fibres, there is also reason to recommend increasing consumption of fruits and vegetables and whole grains - the foods not just the fibre.⁴

High Fibre Menu

By following Canada's Food Guide and including high fibre foods with every meal, it's easy to meet the general recommendation to double dietary fibre intake (measured in grams).

| Serving | Breakfast | Dietary fibre (g) |
|------------|-----------------------------|-------------------|
| 175 ml | bran flake cereal | 4 |
| 1/2 medium | sliced banana | 1 |
| 125 ml | 2% or skim milk | 0 |
| 1 medium | orange, quartered | 2 |
| Lunch | | |
| 2 slices | 100% whole wheat bread | 4 |
| 1 leaf | lettuce | 1 |
| 45g | sliced chicken | 0 |
| 2 slices | tomato | 1 |
| 1 medium | apple | 3 |
| Dinner | | |
| 90 g | baked fish fillet | 0 |
| 1 medium | baked potato (with skin) | 4 |
| 125 ml | cooked carrots | 3 |
| 125 ml | steamed broccoli | 3 |
| 250 ml | fres strawberries | 3 |
| 250 ml | 2% or skim milk | 0 |
| Snacks | | |
| 1 medium | oat bran muffin | 3 |
| 45 g | low fat cheese | 0 |
| 100 ml | raw celery and green pepper | 1 |
| 125 ml | yogurt | 0 |
| | | 33g |

Healthy Weights in '88

Did you participate in a Healthy Weights BMI station? Readers who missed the nutrition month displays in your community may obtain an explanatory guide and BMI (body mass index) chart by writing to The Editor, Macdonald Journal, Box 284, Macdonald College, Que., H9X 1C0.

¹ Anderson, J.W. 1985. Physiological and metabolic effects of dietary fibre. Fed. Proc. 44:2902.

² Liebman, B. 1985. What is this thing called oat bran? Nutr. Action 12(9):7.

³ Health Protection Branch. 1988. Dietary fibre. Information Letter No. 736, Health and Welfare Canada, Ottawa.

⁴ Bird, R.P. 1987. Dietary fibre and colon cancer prevention. N.I.N. Review No. 3, Rapport Suppl 2(3).

Notable Events

Montreal Farmers' Club Annual Meeting

The Annual Meeting of the Montreal Farmers' Club was held at Macdonald College on January 27, 1988. After dinner staff and students of the college joined the members to hear guest speaker the Honourable Pierre Blais, federal Minister of State for Agriculture speak on "Agriculture and the Free Trade Agreement."

In his opening remarks Mr. Blais said, "I believe Canada's trade agreement with the United States is very essential to the future growth of Canadian agriculture." He pointed out that "half of all farm cash receipts in Canada are derived from export sales. Canadian agriculture is heavily dependent on export markets. And our largest single market is the U.S. In 1987 the U.S. absorbed: two-thirds of Canada's non-grain exports; 89 per cent of our live cattle and swine exports; 82 per cent of our beef and pork exports; 77 per cent of our maple product exports; and a large portion of our export of flowers, potatoes, potash, and other farm-related products."

"When you consider the importance of our trade with the U.S., and when you consider the current crisis in world agricultural trade, then you start to understand why the Free Trade Agreement with the U.S. is so important to our farm industry."

Pierre Blais discussed the competition and other problems hindering exports of farm produce: protectionism, unfair subsidies, over supply, and countervailing duties. He also pointed out that we are not exporters of all commodities. "Some sectors of our industry serve mainly our domestic market. They do so efficiently and effectively. Our dairy sector is one example. And we have found that a system of supply management succeeds very well in dairy. Through our supply management programs, farmers earn a fair return on their labour and investment, and our country is not burdened with vast surpluses. In fact, 60 per cent of farmers in Quebec participate in some form of supply management. Most of them have one burning question about free trade: 'will our program survive in the free trade environment?'"

"My answer is yes," he continued, "Absolutely. Under the agreement supply management has been maintained for our dairy, poultry, and egg industries. The underpinnings, including quotas, have been retained. And Canada still has the right to introduce new supply management systems."

"Canada pushed for, and won, reference to Article 11 of the General Agreement on Tariffs and Trade — the Gatt. This article refers to the right of all member countries to impose import controls in order to protect the integrity of their supply management systems."

"We are amending the Import Control List to include ice cream, ice cream mixes, ice cream novelties, ice milk, ice milk mixes and yogurt. In addition we are amending the articles on skim milk, buttermilk and blends to include liquid and other forms of these products."

Turning to the horticulture sector, Mr. Blais said, "Most tariffs will be phased out over 10 years. But during the subsequent 10 years, we can reimpose tariffs on fresh fruit and vegetables under certain conditions where import prices are abnormally depressed."

"The agreement also creates opportunities which capitalize on our strengths," Mr. Blais emphasized. "On our ability as traders. And on our determination and will to succeed. Among our many strengths here in Quebec is our ability to produce milk cost-effectively. Another in our agri-food industry is our ability to produce specialty cheeses. There is every reason to believe that Canada will find new markets for specialty cheese as a result of reductions in tariffs under the agreement. Cheese, is just one of many, many examples."

Mr. Blais turned to sectors that are not supply managed. "The Canadian Pork Council is a supporter of free trade. Quebec pork producers already export 30 per cent of all they produce to the U.S. And there is great potential for growth as a result of the free trade agreement. That's because the agreement reduces technical barriers to trade and reduces tariffs. Most importantly, it provides for the creation of a neutral tribunal — with members from both countries — empowered to make binding decisions about trade disputes. No other countries before Canada and the United States have managed to develop a mechanism as effective and promising. As a result of these provisions, we can expect to



At a reception before dinner, l to r, Martin Parent, Vice President, Finance, on the Students' Council, Charles Charron, BSc(Agr)'80, Media Assistant to the Minister, the Honourable Pierre Blais, Minister of State for Agriculture, and Vice-Principal Roger Buckland renew acquaintances.

see increases in our exports of live hogs, fresh lean pork and processed pork. This means opportunities not only for producers but also for processors.

"There are many more opportunities...for our beef industry, potato producers and processors, for mushroom growers, for many types of fruit and vegetables, and for our flower industry."

Mr. Blais admitted that he was not an impartial judge. "But I do believe I am an honest one. And my verdict is that the Free Trade Agreement is an aggressive trade strategy for Canadian agriculture."



Farmers' Club Member Marc Cote, I, Pierre Blais, Donat Roy, and President of the Montreal Farmers' Club Arthur Abbey, discuss the evening's activities.

...continued from page 24

funded projects outlined above, exchange missions have taken place with animal breeding organization officials from Hungary with the view to establishing a central computerized milk recording system in that country (similar to DHAS). As well, a letter of agreement has been signed between the University of Agricultural Sciences at Godollo, Hungary, and the Faculty of Agriculture, Macdonald, to cooperate in scientific exchanges, graduate student training, etc.

etc.

In late 1987, a Chinese delegation from Xinjiang Province in the People's Republic of China visited the Department of Animal Science and the Macdonald College Farm, and spent several days touring Quebec and eastern Ontario. Interested in developing a project to improve animal production in Xinjiang, the group included Xia Luojun,

who was a visiting scholar in our Department from 1984-86.

Hence, our international involvement continues; for those of us fortunate enough to participate, our enhanced understanding and appreciation for the peoples of the world are important components of the assistance which we may be able to offer them.

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Fun Fact Fable Fiction

by Ralph H. Estey

Emeritus Professor, Department of Plant Science

Bulrush Books

The bulrush of the Bible (Exodus 2:3, and Isaiah 18:2) is presumed to have been *Cyperus papyrus*, commonly known simply as papyrus, from which has been derived the modern word "paper". Although paper as we know it was invented in China, the ancient Egyptians used to cut bulrushes into thin slices and then weave and press them into sheets on which they could draw or write. Strips of pith, the soft central part of the bulrush, were also laid side by side to form a tight layer, and another layer was placed on it, at right angles to the first. The two layers were then pressed together to form a single sheet. The Greeks referred to that white pith as "byblos", and books composed of sheets of pith, as "bybla", hence the word Bible, and such words as bibliophile, bibliography, etc.

Birth Control

Abortion is the one and only method of birth control. All other methods and devices for so-called birth control are for the prevention or control of conception.

Maggot Medicine

Surgeons in Napoleon's army are believed to have been the first to notice that men whose wounds were infested with blowfly maggots were much more likely to survive. They did not develop blood poisoning, and their wounds healed quickly.

In the American Civil War army surgeons deliberately put blowfly maggots into wounds to clean away dead, decaying tissue. Recent studies have shown that the maggots not only consume bacteria and dead tissues, they also produce antibiotics that aid in the prevention of gangrene.

Transformations

Izaak Walton, author of "The Compleat Angler or The Contemplative Man's Recreation" seems to have had a remarkable awareness of the natural transformation of the body of one species into that of another. This is evident in a small portion of one of his poems, written in 1672.

*"So rotten planks of broken
ships do change
To barnacles. Oh transforma-
tion strange
'Twas first a green tree, then a
broken hull
Lately a mushroom, now a
flying gull."*

Uncoordinated

Areas on the surface of the sun rotate at different speeds. Near the poles it takes about two days longer for the surface to make a single rotation than it does for the surface near the equator.

Bilingual Coins

Coins with inscriptions in two languages have been common in all periods of the history of coinage. When Rome controlled parts of Asia Minor, the coins used in that region had Latin and Greek inscriptions. In the Middle Ages the coins of Sicily had Latin and Arabic legends. The Royal Canadian Mint has maintained the tradition by minting bilingual Canadians coins: Latin on one side and English on the other.

Medical Humour

Lady: I'm concerned about my pallid complexion, doctor. What can I do about it?

Doctor: I think you should diet.

Lady: That's a good idea. What colour would suit me best?

Tortoise Shell

The shell of a small sea turtle was

prized as an ornamental material from very early times and, in Canada, until the 1920s, when its popularity began to decline. The shells could be softened and flattened or moulded by the application of heat and pressure. The heat also liquefied a surface film on the horn-like material thus making it easy to "weld" shells together for added thickness or surface area. The shell material was commonly used as a veneer for small boxes and frames. It was also cut into combs, formed into knife handles, and used as inlay material on cabinets and certain types of furniture. Imitation tortoise shell, made of stained celluloid, hastened the demise of the tortoise shell industry.

A Natural Absorbent

Peat moss, the original absorbent material that kept Eskimo babies dry, was used for surgical dressings during the first world war. The Department of Botany, University of Toronto, collaborated with the Canadian Red Cross Society in organizing the collection and processing of the moss for that purpose.

Red Cross

The origin of the Red Cross was in Switzerland, when the symbol of the Red Cross was made by reversing the colours of the Swiss flag. In Canada the Red Cross had its beginning during the Riel Rebellion.

Hindu Fable

Vishnu spoke: "O Bal! Take your choice: with five wise men you go to hell, or with five fools you pass into paradise."

Bal answered: "Give me, O Lord, hell with the wise, for that is heaven where wise men dwell, and fools would make of heaven itself a hell."

Bi-jove

Biannual means occurring twice

a year; but bimonthly means occurring once every two months.

It's Caffeine Free

During the war of 1812-14, the price of coffee went so high as to make it too costly for many people. As a consequence of this, a number of coffee substitutes appeared on the market and recipes for others appeared in farm magazines. The Old Farmer's Almanac for 1815 contributed this one:

"The potato is found to resemble coffee in taste, smell and color more than any substitute that has been tried. Few persons can distinguish one from the other. It is one of our cheapest and most plentiful vegetables. We are not dependent for it on foreign commerce. It sits light on the stomach, is nourishing and easy of digestion, and does not irritate the nerves of weak persons or cause watchfulness.

"Wash raw potatoes clean; cut them into small square pieces of about the size of a hazel nut. Put them into a broad dish or pan; set them in a temperate stove, or in an oven after the bread is taken out; stir them frequently, to prevent them from sticking together. When perfectly dry, put them into a dry bag or box.

"When used, they must be roasted the same as coffee, and ground in a mill."

Botanicals

Caraway seed is not a seed. It is a dried ripe fruit. Witch hazel is not a hazel. It is an elm.

Metric or Imperial?

A lady with features cherubic
Was famed for her area pubic
When they asked her its size
She replied in surprise
"Are you speaking of square
measure or cubic?"

Seeking Solutions

Northern Studies

by Dr. R.K. Stewart,
Associate Dean, Research

We as Canadians claim to be interested in the true North, strong and free, and the Macdonald community certainly seems to be pitching in on efforts to keep it so.

Recently, McGill University signed a tri-lateral agreement with the University of Copenhagen and the University of Alaska (Fairbanks) to cooperate in research and higher education in the Circumpolar Arctic. Although the agreement is a very general one at this time, the broad objectives are to ensure the welfare of Arctic people and the northern environment.

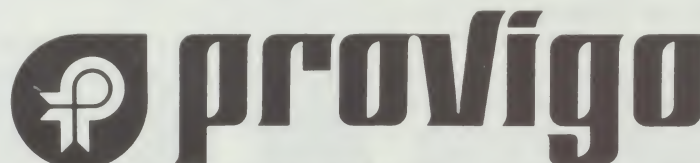
We do already have a history of northern work at Macdonald. Harriet Kuhnlein in Dietetics and Human Nutrition is working on the diets of northern people. In Microbiology Roger Knowles has been looking at nitrogen fixation in northern soil. John Bain of Plant Science is studying the flora of the north. The Department of Renewable Resources has a lot of activity. Roger Bider, Rodger Titman, and David Bird have carried out environmental impact studies as well as ornithological work. Fred Whoriskey of the same department is looking at fish culture in the north. Tom Smith, an Auxiliary Professor in Renewable Resources, and scientist at the Arctic Fisheries Research Institute, Ste. Anne de Bellevue, has several graduate students in the department working on fish and even studying whales in northern Quebec. I noticed that three Renewable Resources graduate students were presenting papers at a Northern Studies Student Colloquium at McGill on April 8. Bill Doidge was reporting on White Whales in Hudson Bay, Jean-François Doyen was looking at migration patterns of anadromous brook trout in James Bay, and Bernard Morin has been studying Greenland cod in the James Bay area.

At the same colloquium, one of Mark Curtis' students in the Institute of Parasitology, Elaine Albert, was talking about parasite transmission in brook trout at Schefferville.

Recently, David Lewis of the Department of Entomology, who has experience working on mosquitoes and other aquatic insects in the

North, was appointed Coordinator for Northern Studies for the Macdonald College Community. He tells me that his initial role is to act as liaison between Macdonald and the McGill Centre for Northern Studies and Research. He is currently accumulating information on Macdonald activity and interest in the North with the objective of promoting even more participation by the community in northern work. He is just beginning his work

on this, but already he has singled out two possible areas of emphasis that he expects might develop. He expects Northern Agriculture and Fish Culture to be of particular interest to the faculty. He did ask me, through this article, to encourage our wider community to contact him for more information on what he is up to, or to express any interest in getting involved.



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Campus Life

Key Attractions

by Hazel M. Clarke

Two events that are bound to bring out the crowds, particularly returning graduates, parents, and friends of participants, are the annual Woodsmen's Competition that takes place late in January, most often on the coldest day of the winter, and the College Royal and Livestock Show, which, for at least the second year in a row, took place in February during the worst snow storm of the season. Also taking place during the Royal weekend was the second annual Diploma Reunion.

Twenty-seven men's and women's teams from eastern Canada and the United States competed at this year's Woodsmen's Competition which was won by Sir Sanford Fleming with Macdonald coming in second. With poles to fell and climb, logs to roll and throw, and wood to saw, split, and chop, the competitors kept busy from shortly after 8 a.m. until the final event. As dusk fell spectators and tired competitors gathered in a circle around the final event: the water boil. Kindling split and matches struck, each competitor huffs and puffs and blows within an eyelash of the flickering flames that come to life and lick up the sides of a small can blackened by years of competition. In three minutes and seven seconds Rob Kyle and Rene Roy were the winners of round one. Rob also won the pole climb in a record-breaking three seconds.

Inbetween events there's time to say hello, welcome back, and what's new. Among the spectators were James "Mitts" Howard, Dip '83, in from his farm in Shawville, and Pat-



Dip grads Donnie Hamilton and Tom Webster take in the day's activities. Don works on his father's farm in Ormstown and also helps out on other farms. Tom is at Macdonald working towards his BSc.

rick Lecavalier, Dip '84, who told us of his new position as a District Manager for Alfa-Laval Agri. Through the day we learned, too, of engagements and up-coming weddings. Sandra Smith, BSc(Agr) '87 and Dave "Fish" Hall, Dip '80, plan a November wedding and will live in Iron Hill where Dave farms. Sandra is currently working in Orangeville, Ontario. Two Class of '84 Dips, Johanne Levesque and Brian Pegg, plan a trip down the aisle for August 20th. And we heard of at least one new addition to the family: a son for Monika (Muller) Dip '85, and Serge Breault, Dip '84.

A couple of weeks later the scene shifted



Dip I student Danny Anderson from Howick proved to be a valuable addition to the Woodsmen team.



Pierre Gasser, BSc(Agr Eng)'86, Kelley Allen, BSc(Agr)'87, Martha Robinson, Dip '81, BSc(Agr)'85, and Gerald Post, BSc(Agr)'81. From Nova Scotia, Gerald comes up each year to help run the annual competition.



David and Lois (Fowler) Bernier, Dip '80, Woodswoman Dely Rogers, MSc student Gerald MacDonald, and Sue Smith BSc(Agr)'86. Since this photo was taken, David and Lois, who are in Lunenburg, N.S., became the proud parents of Shanna Pauline, born in late March. Gerald and Sue plan an '88 wedding.

form the campus to the college farm for more competitions and more fun. The 40th Annual Royal and Livestock Show drew an interested and enthusiastic group of participants and spectators. Caroline Beaulieu, daughter of herdsman Gordon Beaulieu, was the Grand Champion Showman but faced stiff competition from Reserve Champion Angela Daly from Wakefield, Luc Thibodeau from Mirabel, and other young veterans of the show ring, such as Peter Beerwort and Chris Studer.

The Intercollegiate Judging Competition, which had to be rescheduled because of the storm, was won by Mac Diploma - Francois Tousignant, Gilles and Guy Roy, and Andreas Schwab. Next were NSAC degree, NSAC Diploma, Laval University, and the University of Guelph.

Before visiting the various booths and displays set up and manned by the students and cheering on the competitors in the arena, Diploma graduates attending their second annual reunion accepted the challenge from Macdonald Staff to play hockey and won the game by a score of 5 to 3. At a reception later in the day the Stuart McDonald Trophy, which was presented for the first time to the class with the highest percentage of graduates present, was presented to Angus MacKinnon representing the Class of '84.

Farm Director and his wife Heidi were presented with retirement gifts by the students at

a banquet on the Saturday evening.

A Macdonald Woodsman caught the true spirit of competition as may be found at events such as the Woodsmen and the Royal: he said to Helen Fox, a Dip I student covering the activities for the newspapers, "all the early starts, cut fingers, bruised knees, and aching backs are worth it after a day of competition with your friends when you have done your very best and had a good time."



Angus Mackinnon, Dip '84, 1, his brother Peter, Dip '85, and Tim Keenan, Dip '84, renew acquaintances with Professor Arch Jones during the Royal.



Dip '81s Bill Shaver, home on leave from the U.S. Navy, Brent Simpson, and Geoffrey McNaughton enjoyed being back for the 2nd annual Diploma Reunion.



Patrick Lecavalier, Dip '84, and Chris Wainwright, Dip '81, also enjoyed the reception.



Finalists try the art of showing swine.



Valerie Armstrong receiving the Novice Champion Trophy from Pamela Ness Templeton. Valerie is from a dairy farm in the Kingston, Ont., area.



The Dairy Champion Trophy was presented to Caroline Beaulieu by Quebec Young Farmers' Shannon Keenan, as John Beerwort looks on.



At the Banquet following the Royal and Livestock Show, Andrea Roper, President of the Livestock Club, Martin Parent, Chairman of the Royal, and Stephen Clark, Chairman of the Livestock Show, presented Heidi and Rudi Dallenbach with gifts. Rudi plans to retire from his position as Farm Director later this year.



The Dip '86s were out to cheer the Woodsmen on: 1 to r, Jim Dempsey, Devin Brennan, Michel Ouimet, Keith Richman, and Alrice Smith. Alrice is from Grenada and is the brother-in-law of Tom Smith who was on an exchange with Keith last year. Keith and his mother own the Peace Valley Natural Foods Store in Dorval. They grind their own flour, make their own bread, and, in season, grow their own vegetables in the Townships.



Sheep Judge Bob Laberge, Dip '54, announcing the results of one of the competitions.

Diploma Corner

Life at a Good Clip

For a fellow raised in the city this young man can talk cattle with the best of them and James Peel, Dip '82, did just that recently with Gordon Beaulieu, Dip '55, Herdsman at the college farm. But then James hasn't been a city fellow for quite some time. He's learned a great deal about agriculture, especially about dairy cattle, in a short period of time, and he has learned it well as the success of his Downtown Dairy Cattle Fitting Service will attest to.

James now calls Masson, Quebec, home, but he originally came from Ville Emard, and he says that the only thing he knew about farming was what he saw on television. His Grade 10 English teacher told him that her father in Trout River needed some summer help on the farm. He took the job and, as his interest in agriculture grew, his employer suggested that James take the Diploma program. As he wasn't completely qualified, James had to work hard to get in. He took summer courses, got a job at Massey Ferguson, and then began his studies at Macdonald.

James spent a lot of time studying, particularly during the first year, but he found time to make some lasting friendships, to work at the desk in the Centennial Centre for Students' Council Secretary Jean Brown, and to join the Woodsmen's team which he found great fun. He particularly enjoyed travelling to other campuses for competitions. He attributes his love of dairy cattle and his interest in fitting them to the fact that he participated in the Livestock Show during the Royal. Gordie picks up the story here and asks the questions.

Gordie: You really enjoyed the Livestock Show.

James: I showed my first cow and that really got me going. It was a lot of fun and a big challenge. Students from farms and the college staff helped me as they had been clipping cows for years. I showed both years.

Gordie: Having someone like you preparing animals for shows, sales, and for classifiers is relatively new, especially in Que-

bec. Fitting has also changed over the years. We used to spend more time shining horns than we did clipping. Horns have now disappeared and clipping is important. What got you into the business?

James: The Livestock Show and summer practice made me decide that I wanted to make a living in agriculture, and to do so I thought I should start by getting more practical experience. I worked on several different farms, including one of the top herds in the province. Several of the farmers I worked for showed cattle, and I also became interested in 4-H and in fitting cows. I got more and more interested and kept on practising. Fitting can be frustrating if you make mistakes, but, as I made progress, I really started to enjoy it.

I next worked for ROP for just over two

years, and in my spare time I started helping people fit cattle for shows and sales or for pictures. Again, the more I did, the more I got interested and the better I got, the more people asked me to help them. Eventually I only wanted to fit cattle. I enjoyed being my own boss and I wanted to prove to myself that I could make a living fitting.

For six months I worked part time on a dairy farm, and the farmer and I made a deal that if I had work I could go and do it. Then in April of 1986 things really took off. Every day, every week there was work. The more shows and sales I did, the more contacts I made, and then I started being able to choose my customers. I had to prove that it is worth while for the breeder or the auctioneer to have their cattle clipped. I have never been told that I have done a poor job, and if it cost me time and

money to keep my reputation, I would do so. I make sure that I don't take on too much work and risk making mistakes.

Cattle are really examined at shows and the quality of work is important. Time is the biggest pressure factor for a sale. You may have 100 head to get ready and only four or five days to do them in. Some may not have been handled; some herds have never been fitted for classification and, therefore, you can expect some problems.

Gordie: Some people clip the whole animal except for the head which is the hardest and most time-consuming to clip.

James: When I started, fall clipping helped me



Butch Crack, of Crackholm Farms, left, and James Peel fitting a cow for a group photo.

a great deal. That is a good way to get practice. Get the proper wrist action and practice holding the clipper because it can get heavy when you are holding it for 12 to 15 hours a day. Every fall all cows should be trimmed up, and their heads should always be done. They look stunted if you don't. The old expression put a hat on your head and your feet will be warm is true. The head is one of the most important things to do, because if a cow's head is warm, she will be warm and she will sweat. When heifers are brought in from outside, the heads should be clipped. They won't sweat as much and will stay much healthier. Clipping is done for good health as well as for show. The tail, udder, legs, and head should be done. The belly could be left, if necessary.

Gordie: Some cows are easy to shape and trim up. Other cows, possibly because of the texture of their hair, are more difficult.

James: It can depend on how much clipping has been done before. A heifer that has never been clipped may be difficult. There are different blades that can be used. I have learned all kinds of techniques so it doesn't bother me as to what they look like or what condition they're in. I get them done.

Cattle that are going to shows should be trimmed up well ahead of time. The animals will have a nicer coat and stiffer hair to work with. I've worked on Holsteins, Ayrshires, and Brown Swiss and each breed is different. Brown Swiss can have very wiry hair which is hard to lift up. Ayrshires don't have strong hair, and Holsteins have all kinds of hair depending on how warm the barn is and how many times they have been fitted.

Gordie: As you know, when the students are getting ready for the Livestock Show we really emphasize washing the animals prior to clipping, especially the topline. It's a lot easier to trim hair that's clean.

James: You get used to working with all kinds of hair if you are always doing it, but if it is a student's first clipping job, washing is the first thing to do. Get that oil out of the

hair. Get nice dry hair, and you can do a better job. Try to put all the advantages on your side when you are learning how to fit: wash your animals and get a good set of clippers that cut well.

Gordie: What is the hardest to do: straighten out the topline, fill in behind the shoulders, or give the animal more heart?

James: When I am fitting cows I want to enhance the good points, and I want to make it look as if I haven't touched them. The ones I do don't look as if they have been clipped; it looks like their hair grew in that way.

I've worked on 9,000 head over the last 3 1/2 years and every topline is a challenge. I like to define the whole animal first. Not every animal looks the same, and if you clip them all the same way, you are not doing the job right. You're improving the quality of the hair but not improving any faults in the animal or enhancing any good points.

I partially do the topline first. Then I do the head and shoulders. I clean off the belly and work with the feet and legs. Then there is the flank and barrel left, and I end by finishing off the top. The topline is the hardest to do. That's what everyone works on and wants to get nice and straight, but you can't neglect the rest. I fit to blend in with the top. I want to make a "V" from one end of the animal to the other. If you have a hole in your top, then you have to cut down again so that you don't have a "V" - it's more like a "U."

Those working with beef cattle want to make things look square and walk down hill. In dairy you want her to walk up hill and you want her to be sharp and you want her to cut everywhere. You want her to be really dairy.

Gordie: How many animals do you average in a day?

James: I can do 25 in a day if I start at 5 a.m. and finish about 7 or 8 p.m. I prefer working early in the day.

Gordie: What products are you using?

James: At the farm I use clippers, a brush, and a hair dryer. At a show, when I am picky about details and working with stubborn hair, I use rosin to keep the hair standing up a little longer. It's thin, doesn't show, and is inexpensive. On the morning of the show when I want to make sure that the topline is going to stay up all day, I use a little Clear Magic. I like to use Shapely's oil to dress them up and shine their coats. Depending on the udder or the cow, I may use a little baby powder.

I like to work with the old clippers: the Stewart 51 model. It feels like a Cadillac when you have those in your hand! Working cattle for shows and for doing detailed work I want a clipper that is well balanced, and you can't beat the Stewart. It fits your hand like a glove. Students couldn't use a Brown clipper because they are special. For fall clipping you can't beat the Aesculap.

I have five clippers at a show. They all have different blades and I can change and not lose any time. On the farm I use two types of blades: a plucking blade and a regular one.

A good fitter should be able to fit his cows with one type of blade - one regular Aesculap or Stewart blade, but if I want to save time there are different blades for different functions. I have two types of blocking blades and can eliminate long hair by using them. There are two types: thick and thin. I'll use the thin one when a cow is not too thin and is well conditioned. When the cow is a little under conditioned, I'll use the thicker one so I don't take too much hair off. I don't want the animal to look gutless. Sometimes I will only run up the side of the legs and a little on the barrel but not in the loin areas. I can use a regular blade to do the legs and shoulders. For udders I use a 5-11 Aesculap. It trims up the veins nicely, or I can use a thinner blade - a 508 - and just go over the veins so that they will stand out a little more. I do not like to pink them up too much.

Gordie: I don't like udders that get really clipped off. The cow comes home from the fair, goes out in the sun and gets sunburnt.

James: I like to leave them white. I don't like to pink up an animal.

A new style has started in this province where some people are peeling the animal right down and just leaving a top. I think it points out the defects and doesn't look natural. We are being critized outside the province, and I hope people don't think that I am doing this type of work.

Gordie: Going back to the clippers, how many blades do you go through?

James: I usually get about 26 blades sharpened a month. Sometimes a set of blades can clip 100 head, depending on whether the animals are washed or not. I spend about \$2,500 a year on clippers and sharpening, and I have one man doing the job for me.

Gordie: Do you enjoy the shows?

James: I sometimes fit at the farm before the show and then go to it and fit for someone else. If there are three herds to get ready, then I do two at the farm and one at the show. Then I have to get them all ready the day of the show. I prefer to take care of one string and worry about one man's cows.

Another good reason for working with the cattle on the farm is that you get a chance to study them. This is particularly true when I have to udder them up. At the show I may only see the udder full three times at the most before I have to bag the cow, and I have to make sure I know what to do. Some say that no one can bag a cow better than the breeder, and that's true if the breeder knows what bagging a cow is all about. He's the one that knows when the udder looks best, but sometimes milking a cow and bagging the udder are not the same. You have to feed them properly to get the fill on them, and get the sack full of milk. How you fill them predicts how the udder is going to look.

Gordie: On the first day at the fair a cow may not eat or drink properly. This can throw off her milk production.

James: If the farmer is on total mixed ration, he has to switch to hay and grain at least seven days before the show. Total mixed ration

doesn't work at shows. It heats up and doesn't stay fresh. Fitting and feeding has to start at the farm.

...continued on page 44

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QWI

Executive Corner

As most of you are aware, after 10 years of wonderful work for the QWI, Sheila Washer has decided to step down from her position as secretary. She will, however, remain a member of the Lakeshore branch of the WI. I am sure you will all miss her and wish her well.

We now welcome Alexandra Jenkins as our new secretary. Alex was born in La Tuque, a small pulp and paper town in northern Quebec. After she graduated from Bishop's University she moved to the Lakeshore and was a French specialist at John Rennie High School for a few years. After marriage and the arrival of her first child Alex gave up



teaching to become a full time mother. Her husband John teaches geology at Concordia University in Montreal. They have three daughters and one son: one daughter, Laura, is at the Université de Montréal, son David is at Bishop's, middle daughter, Susan, is at John Abbott CEGEP and hopes to go to Bishop's next year, and the youngest, Anne, will be at John Abbott next year. Going to Bishop's is a family tradition with the third generation now there.

Alex started working in the WI office in late February. She also works part time for the City of Pointe Claire in the Stewart Hall Library. She finds the work a challenge and is enjoying the change from teaching. She

hopes to find time to continue with her needlework - knitting, sewing, and quilting - and other crafts. Alex enjoys golf, cross-country skiing and, in the past, has played some tennis.

Alex feels that the WI work is interesting and varied and, as the weeks go by, she is becoming more familiar with all the facets of QWI and is looking forward to meeting everybody at Convention.

Lucy French
QWI President

Pennies for Friendship

The pennies come from all over the world for the purpose of financing the operation of the Associated Country Women of the World. But like everyone, ACWW is feeling the pinch of inflation and those pennies do not have the value that they used to. It still takes 100 pennies to make a dollar but that dollar's buying power has greatly decreased.

When a woman becomes a member of her local WI there is a good chance she does not realize the size of the overall organization she has joined. She sees Pennies for Friendship being collected faithfully at each meeting and it becomes a practice taken for granted. It may be a number of years before she finally realizes how far those pennies travel and how many expenses they have to pay. I never realized this until I became branch treasurer and later county president and started attending provincial conferences and board meetings.

We had two new members join our local branch recently. One is a daughter of a faithful member of long standing, and she knows that by joining the branch she is also a member of the Federated Women's Institutes of Canada and a member of ACWW. The other lady doesn't have a clue, I'm sure, and it will be some time before she knows the full scope of WI. Somehow there seems to be a wall between ACWW and grass roots members. Oh, there have been a few holes kicked in it, but it is still in existence. I'm hoping that

the newly created convenership in International Affairs will help do away with the wall. I think that this convenership has helped in Quebec. If the grass roots members can be made to understand the scope of ACWW and that it is their pennies that give it life and breath, perhaps then they will be more inclined to help ACWW income keep step with expenses.

Usually at our county annual there is a dish placed on the head table and members are reminded to put in their pennies. This year we stopped the meeting and the dish was passed to everyone, even those working in the kitchen. We took in three times as much as we normally did. At our branch meetings we should take a minute during the meeting and collect the pennies for ACWW.

Women's Institutes get many requests for money. But women are getting wiser. Before they hand out their dollars they want to know just what percentage of those dollars is actually reaching the intended destination. Some of their findings have not been very encouraging. It costs more today to raise funds, and so they want to get the best value for their donated dollar. One of the things I have stressed in Quebec is that for good donated dollar value send contributions to ACWW. ACWW has many worth while projects around the world and, by donating to ACWW, we know our dollar will be stretched to its full capacity.

Pearle E. Yates
Provincial Convener of International Affairs

SAFETY FIRST

by Elsie Prevost

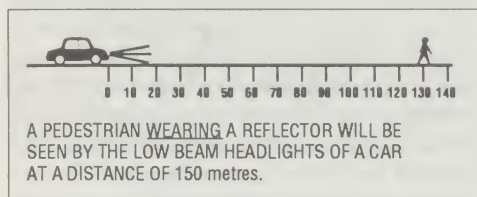
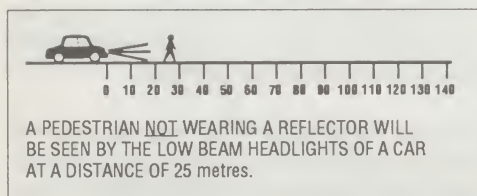
See Me, Be Seen
and Be Safe



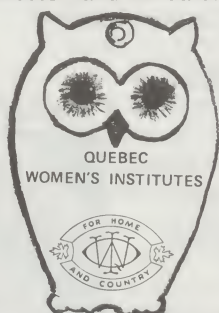
To be safe at night you must be seen. That is why we decided to encourage the wearing of See Me Pedestrian Reflectors. These Reflectors are a small attractive device made of hard prismatic plastic. They were originally directed to children, but it soon became apparent that

there was a strong interest from other groups, such as joggers, cyclists, bikers, and pedestrians in general. They are worn on zipper pulls, key rings and cycling reflectors and are attached to outdoor clothing, jogging suits, sportsbags, handbags, schoolbags, back packs, and even on your dog's collar when taking him or her walking.

A pedestrian not wearing a reflector can only be seen in the low beam headlights of a car at a distance of 25 metres and in the high beam at a distance of 100 metres. A pedestrian wearing a reflector can be seen in the low beam at a distance of 150 metres and in the high beam at a distance of 300 metres.



We have chosen the Owl Shape since the Snowy Owl is our provincial bird. Wear a See Me Reflector and Be Safe.



The Mansur Schoolhouse

The Mansur Schoolhouse had been built in 1819 on a piece of land given by the Mansur family. Because of the many changes in the school system in the locality, some of the rural schoolhouses were consolidated with

Stanstead College, consequently closing the school.

Stanstead WI, a young branch in 1929, attended the County School Board meeting to seek possession of the school and to preserve



The Stanstead North WI hold their summer meetings in the schoolhouse and with their preserverence it is certain they will continue to do so for many years to come.

it as a landmark. What foresight those women possessed! The Institute was granted permission to use and care for the building by the School Board and forces were put into motion to restore the building but not to change its original character. The same desks the pupils and the teacher used remain, but the old box stove where children put their lunch boxes to thaw out and wet mittens to dry has been changed. Grounds around the building were given attention including the addition of a stone wall along the back of the property. A kitchen section was added and equipped in 1930.

The Institute has preserved the school's earlier days by compiling a list of the 60 school teachers who taught in the school. Old photographs adorn the wall and the contract between the Institute and the School Board is a framed memento.

Willing to share the school's heritage with others, branch historian, Janice Soutiere, takes youngsters from the larger schools into the schoolhouse and answers their many questions. The part of the schoolhouse which the children find most interesting is the out-house!

In 1946 when repairs were needed, a campaign was launched and was so successful that extra funds were set aside in a bank fund for future repairs.

In 1987 a new roof was needed and a salad supper was planned to raise further funds for the necessary materials. Response was again overwhelming and, as in 1929, work bees congregated, volunteering their time and talent to swing hammers and paint brushes free of charge.

The Mansur School is believed to be the second oldest rural school building still in existence in Canada. It is hoped that this school will continue to stand by the side of Highway 143, north of Stanstead village, for many more years to come.

40th Anniversary of Canadian Citizenship Act

Contacted by Mrs. Mary Enright, Shefford County WI Citizenship Convener, Mrs. Carmen Grenon of the Court attended the semi-annual county meeting and passed along information on how to obtain a citizenship card and also explained the benefits of having one.

After the meeting a photographer was engaged to take photos of 50 people who were interested in obtaining their citizenship cards and a special presentation was organized by court clerks, Mrs. Grenon, and Mario Senecal of the Montreal Citizenship Court who "set the stage" by draping a wall hanging across the stage of the Granby United Church which said "Forty years of Canadian Citizenship 1947-1987."

Judge Françoise Laporte, who was introduced to those obtaining cards and to their family and friends, read a stimulating article which contained the "Essence of Being a Canadian." This was followed by the oath of citizenship. All recipients received their Citizenship Certificates, cards, a sticker, 40th anniversary pins, a Canada pin, and a Charter of Rights. A framed certificate, depicting new Canadians from different countries, was

presented to Mrs. Jeannine Lussier, Shefford County WI President. As well, a framed certificate which bears the coat of arms of Canada was presented to Mary Enright. Mrs. Lussier thanked Judge Laporte for making the presentation, Mrs. Grenon for her generous assistance, and Mary Enright for all her hard work in promoting this project.

Honour Our Members

Compton County members, including past presidents, presented an Honour Roll to the Compton County Museum. The Honour Roll commemorates the membership of past members and will be displayed at Eaton Corner along with a cabinet containing the Life Membership pins of deceased members and another cabinet with a leather bound Honour Book. This cabinet was made by Frederick Robinson of Sawyerville; the leather book was tooled by Mrs. Pratt of Cookshire, a past County President. Those at the presentation of the Honour Roll to Mr. Heatherington, Past President of the Museum Historical Society included Dorothy Loveland, Lavina French, Ruth Nugent, Mabel Mackay, Fern Pheleman, Bonnie Laroche, Lilian Laroche, and Frances Bain.

IN STITCHES

by M. Elizabeth
Jennaway-Eaman
Faculty of Education



As I leave the employ of the university to take up an administrative post, I am sad that I must say au revoir to friends such as yourselves whom I have enjoyed meeting every May during Convention. However, I am encouraged that over the years that I have been judging handicrafts for you, I have seen the overall quality of the entries improve and the participation in various competitions increase.

Many of you compete successfully in Expo Quebec competitions and, from the feedback that I receive, I know that if I have spotted a flaw or an error, chances are that another

judge will see them too. It is usually the person that makes the least mistakes that wins. I have known occasions, however, where there have been several technically perfect articles, and I have had to look for extra aesthetic touches which make an article stand out from the others. Lest you think that technique is all that I look at, let me stress the importance of end use or function of the article and the appropriate choice of fabric and/or thread selection.

I would like to leave you with a challenge! Pass on to at least one other person the recipe for your successes. Take the skills that you have learned over the years when competing and add the will to work at something until it is near perfection. Add a generous amount of patience. Add fortitude to examine work critically, to see and really acknowledge that "yes," that is worthy of being exhibited and judged or "no," that must be changed. The results should ensure that WI handicraft competitions will continue to thrive.

My best wishes to you all. I hope to keep in touch.

The Patriotic Easter Egg

"Even though she has only been a member of the South Bolton WI for a few years, Janina Grygar has been quite active," Betty Needham, a former president of the branch said recently. "She has donated Easter eggs and paintings for gifts and nearly always brings some of her little polish pastries as an extra treat at our meetings."

As she gives to the WI so does Mrs. Grygar give to the rest of Canada. It is her way of saying thank you to her adopted country. Of all her accomplishments, possibly the most famous is her tribute to Canada - an ostrich egg on which she has painted the crests of the provinces, the provincial flowers, and red maple leaves. It took three months and three coats of oil-based paint to cover the porous shell. This beautiful egg, which she sent to the Prime Minister, has been added to the collections of the Canadian Museum of Civilization in Ottawa and last year it was fea-

tured in a special exhibition entitled *The Art of Belonging* to honour the 40th anniversary of the Canadian Citizenship Act. As a matter of fact, a coloured photo of the egg graced the April cover of "What's On - Voici Ottawa-Hull." Mrs. Grygar was invited to attend this exhibit which featured objects created by Canadians to express their love of their country.



Ostrich egg painted by Janina Grygar is in Ottawa museum.

Originally from Poland, Mrs. Grygar suffered more than her share of hardships during and after the second world war. She lost her first husband and a son after being sent to Russia. She spent some 10 years moving from country to country until she found a home here in Canada about 36 years ago. Quite a contrast from her cheerful, colourful works of art. Mrs. Grygar worked in an art studio in Montreal for eight years, and she and her husband now live in South Bolton where their home is filled with paintings. She has painted hundreds of eggs, each taking a minimum of five hours to do depending upon the size of the egg and the design she creates. Prime Ministers and MPs have received these eggs as gifts, and many of these recipients have ordered eggs for friends. She treasures the letters of thanks she has received and no doubt will receive more as she says the days are not long enough for all the things she wants to do.

WITH THE BRANCHES

Abitibi East: Matagami knitted 2 scarves, 1 pair of slippers, 1 toque, 3 pairs of socks, and 6 pairs of mitts: these were given to a needy family in Logan. Each member donated \$5 instead of exchanging Christmas gifts, which went towards a basket for a needy family during the holidays.

Argenteuil: Brownsburg were given a tour of Domaine Brownsburg by Messrs Evariste Blanchard and Marc Carriere, President of Domaine Brownsburg Organization Inc. and Secretary Treasurer of the Municipal Corporation of Brownsburg respectively. Those on the tour were conducted through several apartments which are now nearing completion. **Dalesville-Louisa** gave donations to the Orange and Protestant Children's Home and the Friendly Home for Adolescents as a branch effort and a personal Christmas donation by members was sent to the Children's Last Wish Foundation. **Frontier** gave a donation of money to the Museum at Carillon to help with expenses. **Grenville** planned to hold their Annual Brunch on Feb. 20. **Jerusalem-Bethany** gave a donation of \$5 from each member to go towards Christmas gifts for Rosemere Home children. **Upper Lachute (East End)** enjoyed a guest speaker who spoke on the art of Feathering and showed a finished picture that she had completed.

Baldwin Cartier: Lakeshore at their Christmas Party dug into a Pot Luck supper and enjoyed a "Beetle Drive" afterwards. A guest speaker, Kathy Masson from the Victorian Order of Nurses, spoke on that organization. This is the 90th year of the V.O.N. as a national organization in Canada and the 76th in the Montreal area.

Bonaventure: Black Cape received a drawing from their foster child in India and read an article on a new industry in Bonaventure which makes articles from fish skins. **Grand Cascapedia** their Citizenship and Legislation Convener Mary Harrison reported that she had represented the branch on Remembrance Day with the laying of a wreath at the cenotaph in New Richmond. **New Richmond West** held two French quizzes which were won by Kathleen Paquet and Frances Cochrane. **Port Daniel** held their 65th anniversary at Shigawake-Port Daniel School. They were presented with a souvenir album by County President, Kathleen Paquet.

Brome: Abercorn gave money to the Sutton Elementary School for their trip to Garagana Camp for the handicapped. **Austin** held a hobby shop of articles made by members during the winter. **South Bolton** commemorated their 65th anniversary by having a hand carved sign installed at the WI building, which is the old #4 schoolhouse, well remembered by former students at a reunion recently. Members are proud of the fact that, thanks from the help of local caring citizens who volunteered their time, the Hall has been painted a brick red with white trim, the original colours of the schoolhouse. **Sutton** heard this report: only 11 per cent of the Cana-

dian land resource has been shown capable of producing crops. Most of Canada's high capability land is located near our largest cities. Class 1 agricultural land is also Class 1 for housing and industry. There was also a report on a firm, Snyder and Sons of Bedford, who packaged 30,000,000 pounds of frozen vegetables in 1986 in the most modern processing plant in Canada.

Compton: (Motto) People will believe anything if you whisper it. Brought a guest to a meeting - a senior citizen living alone and one branch gave a Seniors' Home a case of oranges. A clock was given in memory of Mrs. Agnes Scott.

Gaspe: The seven branches donated 159 articles to the Wool Gathering which was held on December 19th at the Sanitorium Ross. Twenty mobile patients were given vests, toques, scarves, mittens, or slippers. The remaining articles were given to Nurse Leblanc to be distributed among the children in another pavillon.

Gatineau: Aylmer East gave donations to the Children's Hospital of eastern Ontario, Save the Children, and the Royal Canadian Legion. **Wright** (Motto) The wonder of Christmas seems even more dear because of the friendship we share through the year. Report that Gatineau Hospital is doing well and members went on a trip to Old Montreal.

Megantic: Inverness (Motto) A lie has no legs to stand on, but it gets places. In remembrance of Founder's Day, the members decided to donate one gallon of maple syrup to the Oddfellows for their party on March 5. **Kinnear's Mills** received thanks from the Community Hall and the Pelletier Home for donations received. Members were told how they could get their Citizenship cards. One report stated that 95 per cent of maple producers affected by dying trees; most say they will be out of business by 1994. "Start your sunny garden now, on a sunny window sill."

Quebec: Valcartier had a very successful year, doing fund raisers and sending donations to organizations within their area. They have also been advertised through the media and newspapers.

Richmond: Denison Mills rejoice in one member, Edwina Stevens who, at 92, catered to the County annual meeting and the Melbourne Ridge anniversary. **Melbourne Ridge** have a display of handicrafts at their meetings and a forgotten patient is written to monthly and is remembered on her birthday. On their 65th anniversary, Diana Taber was honoured as the oldest member of that branch as she had joined the year it had formed. Had Sandra Roberts, a guest speaker, a Parent Representative to the School Board. **Richmond Hill** have been busy making quilts and some are ready for sale. They attended an Adult Education painting class exhibition by the Eastern Townships School Board. **Richmond Young Women** heard an article entitled "Females are Farmers Too." It was mentioned that

farming is one of the few occupations where women have not had to fight to share the work. They are at last demanding credit for the help they have always given in family farm operation. They presented a play "Business as Usual" at the annual county meeting. **Spooner Pond** participated in the "Wool Gathering" project. They celebrated their 50th anniversary last April, and Mrs. G. Parker presented two members with their 50-year pins: Eddie Lampron and Beatrice Rodgers.

Rouville: Abbotsford are going to be doing some research and hope to find out the Homestead names of many properties in their area.

Shefford: Granby Hill reported that a French company that makes inflatable boats will be set up in Granby. Zepplin will make 1,200 boats in 1988. **Granby West** were informed on Biogicallic Wills - if you don't want any help in prolonging your life, when medication or treatments are of no use.

Sherbrooke: Ascot heard from a guest speaker who had come from the CLSC and a nurse from Champlain College: each spoke on health education programs in Lennoxville. June Westman spoke on the work done by ANAE Ladies Auxilliary in Lennoxville. **Belvidere** gave gifts to the Cancer Society to be given to patients at Christmas and fruit to be given to Grace Christian Home. Profits from a bake sale went to the Founder's Day fund. **Brompton Road** gave a money award to a student at Alexander Galt School. A crate of oranges was given to the Wales Home for Christmas and a donation of money was given to the Cancer Clinic to help buy gifts for students. Made fruit baskets for sick and shut-ins at Christmas. **Lennoxville** gave a donation to the Lennoxville School Hot Lunch Fund and knitted articles for the Wool Gathering project. **Milby** gave the Comelia Orr Award at Alexander Galt School and sold poppies for the Legion.

Stanstead: Ayer's Cliff purchased the FWIC magazine for the branch and daffodils were sold and proceeds were sent to the Cancer Society. **Hatley** had a dinner and craft sale for Founder's Day. Donations were sent to a retarded home and a rest home as well as the preschool kindergarten. Members attended the International Ploughing Match. **Hatley Center** has subscribed to the FWIC magazine. **Stanstead North** gave accounts of meetings in three newspapers: the nature of the meetings were also printed.

Darleen Sabetta
QWI Publicity

Through The Years

L.M. Montgomery at Macdonald College

by Dr. Elizabeth Waterson
University of Guelph

The Selected Journals of L.M. Montgomery, Volume 2, cover the years 1910 to 1921 — years when the famous author of *Anne of Green Gables* had an interesting relationship with Macdonald College. In 1910, she used some of her first royalties to send her cousin, Frederica Campbell, to Macdonald, to take Household Science. Earlier, Montgomery herself had enjoyed a year at Dalhousie University but had been unable to afford to continue there; she determined that her young cousin should have the advantages she had missed.



Frederica Campbell (MacFarlane), right, with a friend Jean Fraser in the greenhouse at Macdonald College. Photo courtesy Archival Collections, University of Guelph Library.

Frederica made the long trip from Prince Edward Island to Quebec, returning in 1911 to act as bridesmaid when L.M. Montgomery married the Reverend Ewan Macdonald and prepared to move with him to Ontario.

At Mac, Frederica Campbell was a good student: L.M. Montgomery pasted into her own scrapbook the record of her cousin's high marks at graduation in 1912. And she

rejoiced when, after a year at Red Deer, Alberta, teaching at the "Ladies College" there, Frederica returned to Macdonald, to a job as Demonstrator to the Home-Makers' Clubs of Quebec. From Ste. Anne's, Frederica could come to Leaskdale to spend Christmas and Easter holidays; and in turn L.M. Montgomery could visit her on the campus.

The journals record four visits. In March, 1915, L.M. Montgomery received an urgent call when Frederica was stricken with typhoid. Colleagues from the college staff made her welcome and showed that they shared her affection for Frederica.

Then in May, 1917, Montgomery was astonished to hear of her cousin's sudden marriage to a young officer on his last leave before returning to the front. She hurried to Macdonald, and lingered to enjoy a "delightful time," meeting the young groom (whom she disliked intensely), and sharing in festivities arranged by Frederica's colleagues in celebration of the wartime marriage. She stayed in Frederica's pretty room in the Teachers' Residence, was guest of honour at a faculty tea, and enjoyed dinner in the Practice Dining Room — a meal cooked and served by the Household Science girls, who also prepared charming place-cards, with special tributes to the famous author.

L.M. Montgomery writes wryly of the girls' "timid awe and admiration": "I have been feeling a queer, half-resentful feeling of regret that I could not have spent some of my formative girlhood years in such a place. . . . I envied the girls who sat under the trees of the campus. And they envied me. . ."

Montgomery was envious, also, of the group of professional women working diligently at the college, a network of colleagues very different from her own limited circle at home and in the little parish of Leaskdale. She found Macdonald College "a beautiful place, especially now in the opening bloom of spring. The buildings and equipment are wonderful." With Frederica, she enjoyed a memorable starlit walk along the river road.

L.M. Montgomery visited again, early in January 1919, making a stopover in Montreal while on her way to Boston to take part in a lawsuit against her publisher. This time she missed Frederica, who was delayed in returning from a trip to Ottawa, but spent a happy day at the college with Frederica's friends Anita Hill and Bessie Philp. In Boston, later in the month, she received a terrifying telegram urging her to return to the college. Frederica had been stricken with the post-war flu, and was dying. L.M. Montgomery stayed this time in the Men's Residence, since the coal shortage had forced the women teachers to move from their own rooms. Frederica was in the Infirmary, where, in spite of devoted nursing, she died.

Frederica Campbell Macfarlane is still remembered at Macdonald. A bursary named in her honour is awarded annually to a young woman from rural Quebec; the bursary is funded by the Women's Institutes which she served so effectively.

Something of Frederica's personality also lingers in several of L.M. Montgomery's fictional characters: in Anne's youngest daughter, who plunges into a wartime romance in *Rilla of Ingleside* (1921); in Leslie Moore, the intense, frustrated girl in *Anne's House of Dreams* (1917). Frederica's story also probably affected *Anne of the Island* (1915). This story of girls at college was begun in September 1913, when Frederica was visiting the Leaskdale manse. It undoubtedly reflects L.M. Montgomery's own memories of Dalhousie. But it seems also to pick up something of the novelist's vicarious glow of pleasure in Frederica Campbell's experiences at Macdonald College.

(The Selected Journals of L.M. Montgomery, Vol. II, co-edited by Mary Rubio and Elizabeth Waterson, was published by the Oxford University Press (Canada) in December, 1987.)

Recommended Reading

My most sincere thanks to Dr. Elizabeth Waterston for writing this article especially for *The Macdonald Journal*. We discussed L.M. Montgomery's interest in Macdonald College last September when Elizabeth accompanied her husband Douglas, BSc(Agr)'45, to Reunion '87 at Macdonald College. The Lucy Maud Montgomery Collection, which includes her journals, scrapbooks, and other memorabilia, is housed in the Library at the University of Guelph, where Elizabeth Waterston, a recently-retired English Professor, and Professor Mary Rubio are co-editors of Volumes I and II of *The Selected Journals of L.M. Montgomery*. They hope to publish the third and final volume by 1990. Each of the first two volumes is priced at \$29.95.

I took advantage of the Christmas vacation to read both volumes of *The Selected Journals* and found them to be an excellent choice for holiday reading, particularly as we had been delighted by *Anne of Green Gables: The Sequel* on television earlier in the month. I highly recommend both volumes for the many readers who "grew up" with Anne and for those who met her for the first time on CBC television, for those interested in Canadian literature, and, finally, for the visitors to and the inhabitants of Prince Edward Island. With the frequent references to her cousin Frederica Campbell MacFarlane, the first Demonstrator at Macdonald College for the Quebec Women's Institutes, Volume II will be of particular interest to members of the QWI.

Readers may be interested to learn that since 1922 the Quebec Women's Institutes have been presenting a Frederica Campbell MacFarlane Award to a student from rural Quebec who has high academic standing in the School of Dietetics and Human Nutrition (formerly School of Food Science).

Volume I of the *Selected Journals* covered the period 1889 - 1910: L.M. Montgomery growing up in Prince Edward Island, becoming a school teacher, and beginning a literary career. It was a time for daydreaming, for making friends, for mild flirtations and budding romances. Volume II takes us from

1910 until 1921: a period which includes taking care of a most autocratic and difficult grandmother, marriage to the Reverend Ewen Macdonald and leaving her beloved Cavendish for a somewhat bleak life as a minister's wife in Leaskdale, Ontario. The joys of the birth of two children and the continuing success of her writing were marred by the anguish she felt during the First World War, her constant battles with her

publishers in Boston, the death of her closest friend and relative Frederica, and her husband's illness. L. M. Montgomery's journals took the place of the intellectual companionship she so often longed for. How fortunate we are that they have been preserved, edited, and published.

Hazel M. Clarke



Helen R. Neilson, Emeritus Professor and former Director of the School of Food Science, recently found the above photo in her files. We have reason to believe that it might be a photo of Frederica with the first group of Women's Institute members to gather at Macdonald College on February 11, 1914. Those present at that meeting included Mrs. Beach of the Dunham Club, Mrs. Rodgers of Cowansville, Mrs. Wilson of Shawville, Miss Armstrong of Bristol, Mrs. Ogilvy of Howick, Mrs. Younie of Howick, Miss Hodge of Cookshire, Miss Cuthbertson of Elmside, Miss Campbell and Miss Bagnell from Macdonald. Do any of our readers recognize any of the ladies mentioned?



Carole Coulombe of Montmagny, Quebec, right, was the 1987 winner of the Frederica Campbell MacFarlane Award which was presented to her by Mrs. Lucy French, President of the Quebec Women's Institutes.

Newsmakers

On Campus

Professor BOB BROUGHTON and GILLES BOLDUC of the Centre for Drainage Studies were in Pakistan in January to help with planning a field scale test of Canadian made geofabric envelopes for 26 miles of interceptor drains along irrigation canals in Sind Province. While in Pakistan they visited ETIENNE PERRATON, MSc(Agr)'81, at the Mardan Salinity Control and Reclamation Project, and JACQUES MILLETTE, PhD'82, at the Canadian assisted Barani Non Irrigated Crops Program at Islamabad. They also met NISAR MEMON, PhD'86, and KAZI MAKTADIR, BSc(Agr Eng)'81. Nisar is Associate Professor at Sind Agriculture University, Tandojam. Kazi and his brother, who has an MSc from McGill, have started a consulting firm based in Karachi.

DR. ROGER BUCKLAND chaired the annual meeting of the Deans of Agriculture and Veterinary Medicine of Canada, held at Belairs Research Institute in January — the first time this group has met outside of Canada. The meetings were most successful, with the Barbadian Ministry of Agriculture hosting a tour of Barbadian agriculture. In addition Dr. and Mrs. Buckland travelled to Port-of-Spain, Trinidad, to attend a reunion meeting of the Trinidad and Tobago Branch of the McGill Graduates' Society arranged by DR. GEORGE BOVELL, BSc(Agr)'45.

DR. GARY DUNPHY, of the Department of Entomology, has recently had published a chapter in a book edited by A.P. Gupta, published by Wiley & Sons. The title of the book is "Hemocytic and Humoral Immunity in Arthropods; title of chapter: Antibacterial and Antiviral Factors in Arthropod Hemolymph.

DR. STANKUBOW, BSc(FSc)'78, recently joined the staff of the School of Dietetics and Human Nutrition as an Assistant Professor. He completed his MSc in Nutrition at the University of Toronto and his PhD in the Department of Nutrition at the University of Guelph. He did postdoctoral studies at Guelph and at the University of Toronto's Department of Pharmacy. As well as returning to Macdonald, Stan got married last December.

Professor GUY MEHUYIS will become Chairman of the Department of Renewable Resources on June 1, 1988.

CAROL NORRAD, BSc (FSc)'85, Clinical Coordinator - Dietetics in the School of Dietetics and Human Nutrition, has a consulting contract with the Canadian Gymnastics Association (Women's National Team) in preparation for the Olympics in Seoul, Korea. She is also providing nutritional education for the Quebec Federation of Gymnastics.

An August wedding is planned for MARINETTE SAMUEL, BSc(FSc)'81, who is a Clinical Co-ordinator (Dietetics) in the School of Dietetics and Human Nutrition, and Jean-Marc Leger.

DR. BETTY STATFORD-SMITH, of the School of Dietetics and Human Nutrition, with Professor E. JENNAWAY-EAMAN, of the Faculty of Education, will give a research presentation at the Congress of the International Federation for Home Economics which will be held in Minneapolis, Minnesota, in July 1988. The research submission was one from about 270 from all parts of the world which qualified for the final review conducted by the Research Committee of the International Federation in Paris. The topic of research is entitled "Student's Knowledge and Attitudes Toward Credit."

Professor ALAN K. WATSON, of the Department of Plant Science, is one of four Canadian researchers scheduled to lecture at the Fourth Annual Canadian Pacific Symposium on Plant Biotechnology which will be held at McGill University on September 26, 1988. The title of Dr. Watson's lecture is "Progress and Prospects of Bioherbicide Development in Canada."

The Department of Renewable Resources will be hosting the first ever joint meeting between the Société Québécoise pour l'Étude Biologique du Comportement and the Northeast Division of the Annual Behavior Society on November 4 - 6, 1988. Approximately 400 investigators from the

northern United States and Canada should attend this meeting. A special symposium on "Behavioral strategies for coping with winter" is planned.

Suzanne Carriere Wins Austin Reed Scholarship Awarded by Quebec Labrador Foundation



Nathalie Zinger, left, presented Suzanne Carriere with the Austin Reed Scholarship.

In honour of the Quebec Labrador Foundation Conservation Award presented to Dr. Austin Reed on January 7, 1988, a \$500 scholarship was given to Macdonald College with the wish that it be awarded to a graduate student whose research interests reflect those of Dr. Reed. Dr. Reed has served a distinguished career as a research scientist with the Canadian Wildlife Service working to conserve various species of waterfowl and seabirds along the St. Lawrence River and in the eastern Arctic.

On March 12, 1988, coinciding with ceremonies sponsored by the Raptor Research Centre, the scholarship was presented to Suzanne Carriere, a MSc candidate in Wildlife Biology from the Department of Renewable Resources by Nathalie Zinger, Macdonald College graduate (BSc(Agr)'81) representing the Quebec Labrador Foundation. Miss Carriere is studying habitat selection by breeding Black Ducks and Mallards. She obtained a BSc from McGill, having majored in Biology. Suzanne will be returning to the region of her home in Abitibi to do her field research.

Off Campus

OFF CAMPUS

Restaurant Owner

EUNICE CHAMPLIN (nee KEANE), the owner-operator of a homey restaurant called Montego Bay at 5354 St. Lawrence Blvd., in Montreal, was a graduate student of plant pathology at Macdonald College in 1968-69. It was there that she met, and subsequently married, fellow student Robert Champlin. Their daughter, Jessica, is now 12. The aseptic culture methods that she learned in Mycology courses at Mac made her acceptable for employment, first in the laboratories of the Montreal General and then in those of the Jewish General Hospital, where she worked for 15 years.

Early in 1987 Eunice left the hospital laboratories and opened a 16-table restaurant that she has tastefully decorated with lots of living plants, yellow and white tablecloths, and water colours by Sylvia Chapeau. Her Jamaican background is reflected in her menus, which include Kingfish steak in Creole mustard sauce, chicken and seafood jambalaya, and other fresh foods that are flown direct from Jamaica. For dessert, one may choose from a list of such tempting dishes as mango and passion fruit mousse, chocolate mousse, and a compot of oranges, various fresh fruits, or one of her homemade cakes.

A Star Graduate Student

We are very pleased to quote in part from an article entitled "A Star Graduate Student" which was published in the February 24, 1988 issue of *At Guelph*:

"Diane Mather will be heading back to Montreal at the end of March with two graduate degrees from Guelph under her arm. She is one of a handful of students who have graduated with distinction from both a master's and PhD program at the university.

"According to her professors, Mather has been no ordinary student. 'She was the best graduate student I have had in 35 years,' says Prof. Ernest Reinbergs, Crop Science, the faculty adviser for her master's degree. Boasting about his star graduate student, Reinbergs says Mather's ideas and judgment were good, she made quick decisions and she was always up to date on the literature. And when her master's thesis on triticales breeding was finished, he says, 'it was finished. There was nothing to take off or to add.'

"After receiving her BSc ('78) from McGill University's Macdonald College, Mather spent a couple of years working in the seed corn industry in Chatham, but decided to come to Guelph, where she wanted to pursue her interests in crop science.

"After graduating with distinction with her MSc in 1982, Mather headed for Denmark for eight months, where she did research on barley for the Danish government. She returned to Guelph in 1983 to start work on her PhD thesis, which she successfully defended in January.

"I believe Diane's is the first thesis in this department that has been solely based on intellectual work without any laboratory or field data associated with it,' says her PhD supervisor, Prof. Lyndon Kannenberg, Crop Science.

"For her PhD thesis, Mather studied some of the corn breeding methods Kannenberg is using. As there was no way to predict quantitative results of those breeding methods, she used mathematics and computer simulation to develop a prediction method. Hundreds of computer hours later, without field data or a single lab experiment, Mather had put together her unusual PhD.

"Mather says grain yield is usually the most important characteristic that corn breeders want to improve. But because of this country's shorter growing season, she modelled the two characteristics of grain yield and maturity, and combined them in a mathematical way. 'I used the computer to build

model populations and then mimicked the selection methods we use.'

"Mather will be returning to Macdonald College (April 1, 1988) as an assistant professor. Her duties will include oat and barley breeding, teaching and research."

DOUGLAS PITMAN, Dip '47, retired in January 1988 after 22 years of service with the Lennoxville Research Station. At retirement he was foreman of the Beef Barn.

MARIE (McCOMB) LINDSAY, BSc(HEC)'49, of Renfrew, Ont., was one of 59 Canadians receiving the Canada Volunteer Award Certificate of Merit in the fall of 1987. The award, given by the federal government, recognizes those Canadians who have made an outstanding voluntary contribution in improving the health and well-being of their fellow citizens. Marie Lindsay's main areas of volunteer work have been in the areas of health, social services, and education. She works with the Association for the Mentally Retarded, the Bonnechere Manor Auxiliary, and the Renfrew and District University Women's Club.

IAN KIRBY, Dip '50, retired last fall from the Lennoxville Research Station where he had been employed in the beef section.

DR. DEAN C. READ, BSc(Agr)'51, MSc(Agr)'56, has retired from the Research Branch of Agriculture Canada in Charlottetown.

ROBERT E. SMITH, BSc(Agr)'55, MSc(Agr)'57, was one of 12 members named a Fellow of the Institute of Food Technologists at the 1987 United States Annual Meeting held in Las Vegas. He was nominated "in recognition of his outstanding, innovative contribution to nutrition, industrial food research, and to the Institute of Food Technologists." After leaving Macdonald, Robert Smith became a research scientist for Agriculture Canada. In 1963 he received a PhD from the University of Illinois. From 1967 until 1978 he worked for the Quaker Oats Company in many capacities,

Keeping in Touch

culminating in his appointment as vice president of research and development, where he directed research and development, engineering, and quality assurance for five years. He served as senior vice president of research and development at Del Monte Corporation from 1984 to 1985 when he joined Nabisco Brands Inc. as senior vice president of corporate research and development. Under his direction, Nabisco has innovated processing technologies which have had enormous impact on the functionality and safety of cereals and baked goods. Robert Smith is director of BioSciences Information Service and an adjunct professor at the University of Illinois. He is also on the scientific advisory committee for the Food Science Department at the University of Minnesota.

LINCOLN REYNOLDS, BSc(Agr)'57, MSc(Agr)'59, won the 1987 Caledon Award, presented by Caledon Laboratories Ltd. for significant contributions to analytical chemistry of pesticide residues and other environmental contaminants.

CLAUDE AUBE, MSc(Agr)'63, PhD'65, has been named Ambassador of the Montreal Congress Center and also received the Alcan Agora Trophy.

DR. RICHARD HOLLEY, BSc(Agr)'66, MSc(Agr)'69, is now with the Technical Services Department of John Labatt Ltd., in London, Ont.

PIERRE CYR, BSc(Agr)'74, District Ag Rep for Bathurst, N.B., and his family left last fall for Senegal where he will be working with the Centre d'étude de coopération internationale (CECI) to help farmers with vegetable production and marketing. Pierre will be in Senegal for two years and will be working with such crops as rice, muller, sorghum, bananas, and mangos.

YVES MAUFFETTE, BSc(Agr)'79, has completed a PhD at the University of California, Davis, and is now teaching ecology at the Université du Québec à Montréal.

MANON TARDIF, BSc(Agr)'84, took a Master in Pest Management (MPM) at Simon

Fraser University in B.C., and successfully defended his thesis in July 1987. Manon says that Simon Fraser is smaller than UBC, but it is an interesting university and the MPM program is very good. Manon is back in Quebec and, since January, has been working for the Quebec Ministry of the Environment on pesticide regulations.

It was wedding bells on April 30, 1988 for STEPHAN BRIERE, Dip '84, and CATHY BLONK, BSc(FSc)'85. Stephan is at Macdonald working towards his BSc and Cathy is employed at the Douglas Hospital in Montreal.

ANDRE LAVIGNE, MSc(Agr)'87, has accepted a position with the Atlantic Salmon Federation. While working towards his MSc, Andre was the Public Education Officer for the Macdonald Raptor Research Centre.

JULIE LOCKWELL, BSc(FSc)'87, has accepted a position with Gaz Metropolitain in the Cornwall area.

CHANTAL PAUL, BSc(Agr)'87, is leaving Macdonald College where she has been working in the Department of Renewable Resources, to work with Club de Production in Bedford. The "Club" is made up of a group of farmers who have got together to employ an agronomer to assist them with grain corn production with emphasis being placed on soil conservation.

BETSY WELLS, BSc(FSc)'87, who is taking her MBA at McGill, is going to France for her second year as part of an exchange program. She will be studying near Paris.

DECEASED

A. GORDON J. HEBERT, BSc (Agr) '37, on January 28, 1988 in Hudson, Que.

DR. ALICE MARY BRIANT, BSc(Agr)'38, of Ithaca, N.Y., in April, 1988. Dr. Briant was retired from Cornell University.

J.R. JETHCOTT, BSc(Agr)'58, of Cornwall, Ont., in October, 1987.

DR. CHARLES A. ECKENFELDER, BSc(Agr)'75, of Gatineau, Quebec. A dentist in Gatineau, Charles Eckenfelder was accidentally killed in a fall in the Himalayas on the weekend of April 9, 1988. He was part of a six-member Canadian climbing expedition and died on Ama Dablam in the Everest region when he fell from a 6,100 metre high point. An enthusiastic athlete, Charles Eckenfelder was an avid skier and cyclist, and took up climbing two years ago.

Donations in his memory may be made to: The Sir Edmund Hillary Foundation, 222 Jarvis St., Toronto, Ont. M5B 2B8. The Treasurer is M.E. Rygiel. Sir Edmund is deeply interested in the Sherpas of Nepal and in 1971 on one of his many fund-raising missions around the world he met W.F. "Zeke" O'Connor who went with him to Nepal where he met the Sherpa people in their small mountain homes. He was so impressed that he returned home determined to seek Canadian help for Sir Edmund's projects. A charter was granted by Ottawa and the Foundation is registered as a Canadian Charitable Institution. The Canadian International Development Agency (CIDA) will augment donations. Principal aims of the Foundation are to expand the operation of the Khunde Hospital, provide health clinics and schools. Donations are used to purchase medical supplies, train local medical staff and school teachers.

The Macdonald Community was shocked and saddened to learn of the tragic death of DR. CHRIS HAWKINS on March 1, 1988, near his retirement home in Bexhill-on-Sea, England. Dr. Hawkins was in the Faculty of Education and spent 18 years on the Macdonald campus. He was a respected and valued colleague and friend to many, and both staff and students benefitted greatly from the French courses he taught over the years.

J. Hume Grisdale 1901 - 1987

The February issue of the *Canadian Jersey Breeder* was filled with tributes to J. Hume Grisdale, BSA'23, who died in Toronto,

Ontario, on December 17, 1987. They came from Patch Farms in Richmond Hill, Ont., Donald and Murray McCaig of Norval Acres Jerseys, in Huntingdon, Que., Payneside Jerseys of Finch, Ont. Hugh MacDonald, BSc(Agr)'68, also remembers him in a very special tribute, and we thank the Breeder for allowing us to reprint the following:

The death of J. Hume Grisdale, former CJCC Secretary-Manager and irrepressible Jersey enthusiast occurred in Toronto, Ontario, on December 17th. Mr. Grisdale had been in poor health for a lengthy period of time. He was in his 87th year.

During his lifetime Mr. Grisdale had experienced just about every possible form of involvement that a human being can have with our association. Hume Grisdale was a successful Jersey breeder; employee at the internationally renowned Brampton Farm of B.H. Bull & Son; Secretary of a local Jersey club; fieldman; Editor of the "Breeder;" Director of the CJCC for seven years; official classifier; judge at major shows (including the Royal Winter Fair), and, as noted, CJCC Secretary-Manager.

The story of Hume Grisdale's life began at the federal government's Experimental Farm in Ottawa, Ontario. Hume's father, Dr. J. H. Grisdale, was a Director of the Experimental Farms System for Canada and later Deputy Minister of Agriculture.

After graduating from Macdonald College in Quebec and working at Brampton, Hume went into partnership with a brother, Jose. The Grisdales established a superior Jersey herd and productive apple orchards at Iroquois in eastern Ontario.

After expropriation of some farmland because of the St. Lawrence Seaway project, the Grisdales stopped farming. Hume became a temporary employee of the CJCC. In the words of another former Secretary-Manager, James Bremner, "it was soon realized that the organization (CJCC) could not very well get along without him." Hume was an effective fieldman and dealt skillfully with some

thorny milk marketing issues (All-Jersey) in Ontario. He became Editor of the "Breeder" in 1960 and Secretary-Manager of our organization in 1962. He held the final position until July of 1971, when he retired at the age of almost 70.

The hallmark of Hume's involvement with the Jersey association was intense dedication to the myriad of demands made on any senior employee of an association like ours. It was in this way that he expressed best his deep and abiding love for the Jersey cow and his faith in her future.

For a younger generation of Jersey devotees the surname "Grisdale" conjures up images of a seemingly tireless lady with a rich Australian accent slightly softened by almost 40 years of residence in Canada. The lady in question is Hume's wife, Jean, a long time employee of the CJCC, OJC, and now Jersey Cattlemen of Canada. With Jean, Hume shared the triumphs and low spots of the Jersey breed's passage through history.

Hume's first wife died over 30 years ago. However, they have two daughters who now have families well on their way to adulthood. To Jean and the families of Hume's daughters and the other Grisdales, we offer our thanks for Hume's enormous contribution to the welfare and advancement of the breed. The inspiration of one who believed so

strongly in the cause of our cow is a precious gift which never loses its glow.

Grisdales at Macdonald-McGill

J. Hume Grisdale had many connections with the Macdonald-McGill clan. His father graduated from Guelph and Iowa State University before Macdonald College opened. His uncle, Dr. Frank S. Grisdale, C.B.E., was a graduate of the first Macdonald class, BSA '11, and helped to lay the foundation stone for the new Macdonald-Stewart Building in 1976. Hume graduated BSA '23 while his brother Simpson V. Grisdale is B.Eng. '36.

His nephew J. Hiram Grisdale is BSc(Agr)'49. Both Hume's daughters graduated from Macdonald and married Macdonald graduates. Marguerite Grisdale, BSc(Agr)'52, married Donald W. Graham, BSc(Agr)'52, and live in Ottawa. Sara Grisdale, BSc(Agr)'59, MSc(Agr)'61, married Norman Lawson, MSc(Agr)'58, PhD'61. Sara teaches science at Macdonald High School while Norman is a professor in the Department of Plant Science. Their three children have continued the tradition: Laurie Lawson is Treasury Officer at McGill, Cameron Lawson is BSc(Agr Eng)'86, while Yvonne Lawson is completing her BA in Industrial Relations (1988). Thus the Macdonald and McGill clans perpetuate and flourish.

...continued from 34

Gordie: Do you work in a particular area of the province?

James: I work anywhere for any reason. I have about 50 regular customers throughout the province, and I also go into Ontario, the Maritimes, and the United States.

Gordie: Do you see fitting as a long-term career?

James: It's fine while I'm single. I have worked the major shows across the coun-

try. I've worked with the best cattle and with All Canadians and All Americans. I've worked with and met many different people. Because of all the travelling, if the right position came along, I might decide to move into another field. It certainly would have to be in agriculture. If I could work for an AI unit, I would give serious consideration to that move, but for now I am enjoying working with dairy cattle and knowing that a lot of people are depending on my work.

Keeping in Touch

Macdonald - a Good Beginning

When I read the article on Suzanne Vidanovic winning a pasta contest, I was struck by the number of parallels between what Suzanne had done, and some of my own experiences while at Macdonald College. Back in 1972 I, too, entered a contest, also a spur of the moment type of thing. It was the Consumers' Association of Canada Student Media Contest. I was very interested in film and cinematography at the time and made a short bilingual film: *Le Consommateur S'Anime/Let the Consumer Beware*. It was a Super 8 mm. animation film made using stop-frame pixilation. The characters in the film were animated vegetables, and very aptly, the movie was shot "on-location" in the Horticulture labs. Like Suzanne, I was quite surprised to win. Additionally, my family, like Suzanne's, also came from Yugoslavia. It appears that we share the common immigrant experience with the "bridge" connecting the same geographical and cultural end points, Yugoslavia and Macdonald College. While attending high school in New York State, or while studying at Macdonald, I had to reconcile North American and Eastern European cultures, and in this case three countries and four languages.

Recalling the staff at Macdonald College, Dr. Farmer is a person that I could never forget; she greatly influenced me at a critical junction in my life. During my earlier years at Macdonald I had trouble with Calculus II (troubles that supps couldn't cure!). I was in a learning rut that I couldn't get out of. Being a draft-age American citizen during the Viet Nam War didn't help my high anxiety to overcome this math course at exam time. I needed to maintain good academic standing to continue my studies. Calculus II got in the way, and only Dr. Farmer's belief in me allowed me to continue. She offered me much encouragement and told me about the rough time she had had studying German while pursuing her doctorate. To a lowly undergraduate, the revelation that a professor (a god-like deity), may have had trouble as a student was unbelievable and inconceivable. The fact that she overcame it and acquired a

PhD became an inspiration for me. It showed me the tremendous value of perseverance. The one-on-one concern that Dr. Farmer offered me probably made all the difference between continuing my studies and being discouraged, alienated, and leaving university. She believed in me at a time when nobody else did, including myself.

After overcoming Calculus II, I was able to jump into my major area of study, concentrate on food science courses (before that I was convinced I was a math major), and complete the requirements for the degree.

Looking back at my not-so-positive encounter with math, I hope that Macdonald, McGill, and other universities in general, take (or have taken) steps to facilitate the learning of difficult subjects. Our educational system requires primary or secondary school teachers to have extensive training in pedagogical methods. At the lower grade levels many new and innovative approaches to learning are tried. On the other hand, these seemed to be lacking at the university level where they are sorely needed.

I am currently the Acting Director of the Nestle Product Co-ordination Department at Nestle Foods Corporation in New York. (This is the arm of the corporation responsible for product development, value analysis, project management and planning, the Nestle Test Kitchens, and a variety of other diverse functions such as food styling, nutrition, sensory evaluation, etc.).

I can look back at many of the courses I took at Macdonald as being good preparation for my career in the food industry and for my current job. Dr. MacRae's course in meat products was an excellent preparation for my work in meat research and development when I worked for Libby's in Chicago. Professor Ferguson's basic course in food standards instilled in me a groundwork and discipline for food sanitation and product quality - two essential elements to any food venture. Professor Raymond's course in food management encouraged me to develop a hands-on, take charge, no-fear approach to any lab

or kitchen situation. After having spent hours in the kitchen for that course, I found myself not afraid to tackle anything, including the making of an elephant stew!

My career path to date, has taken me into a variety of different disciplines and product areas, including product development, process development, engineering, and market research. The multi-discipline nature of the food science program at Mac gave me a much broader background and perspective than most of my fellow new-hires when I first began working. Having taken such courses as nutrition, biophysics, microbiology, product development, food engineering, statistics, experimental foods, post harvest physiology, and organization behaviour gave me a pretty solid foundation for most any food research project. (Well, almost any). I can look back now and laugh at one exception! While studying for Dr. David's Fruit and Vegetable Processing course, we were told that the final exam would encompass four out of five units of the course. The student had the option of eliminating one unit. Being a typical student, I opted to eliminate what we had learned in physics to be the path of least resistance, the difficult unit: thermal process determination. I made no effort to even open the textbook to those chapters, let alone attempt to learn it. Soon after graduating, I went to work in food research, and my first day on the job I was told that I would be specializing in thermal process determination - the one unit I omitted learning in college! I eventually went on to learn more about this subject than any one individual would probably ever want to know in a lifetime!

I never knew why I had to take communications arts as a food science major, the course seemed to lack any "beef." It's funny how some of the simple instructional principles I learned in that course have stayed with me as useful tools. It seems no matter what job you do, you're either learning something, or trying to teach someone something!

I find the new Macdonald Journal to be an outstanding publication. The recent issue

devoted to food science was excellent. The new Journal is well written, with pertinent content and much interesting reading. It is a very visible extension of the college, and reflects what looks like a lot of exciting things going on at Macdonald nowadays.

Keep the Journal coming!

Anton Angelich, BSc(FSc)'73
New York, N.Y.

Random Memories

Now that Mary and I have returned to New Zealand from our fabulous visit to Mac and Canada I thought I'd send a few random selections of my memories of Mac in the late 40s and early 50s.

As my grandfather and namesake was the driving force and founding principal of Mac I grew up with no other consideration except to go and become a full member of the clan. My first direct contact with Mac was at the tender age of 12 when I spent a month boarding with old friends of my mother's in a house on Maple Avenue beside the old high school. My sister Ishbel had just finished her BSc(HEc) and was instructing in the Handicraft Department in the basement of the Main Building. I was allowed to take a range of courses during the month of August that I spent there. Three things that happened have stuck with me as I creep into middle age. The first were Mrs. Brittain's chocolate brownies of which I had more than my share during several delightful visits. Second was a corn on the cob eating contest held in the cafeteria which was in the annex to the old men's residence. A friend of my sister's and I were the finalists. I think it was a draw as my memory says they ran out of corn before we were completely sated. Third was learning to work a lathe and acquire the love of fine wood. Somewhere in our family there is a mahogany bowl made from a piece of corvette decking that I made with care and concentration.

The stage was now set for my continued edu-

cation when I returned to Mac as a Sophomore in the fall of 1949. First good eating and drinking, second fierce, friendly competition, and third fun learning skills that are not forgotten. For good or evil it was in that order of importance that I tackled "North America's best winter resort" (a quote widely used during my time at Mac). Where else could one learn to leave exactly one glass of milk in a pitcher to ensure the next user had to refill it, how to sleep through Prof. Macfarlane's economics lectures (always held first thing Saturday morning) while appearing to take notes or how to leave a mail box in the middle of a snow-covered Oval leaving no foot prints?

Though I hadn't been back since the 1962 Reunion, the close belonging feeling returned just as if I'd only been away a couple of days. In spite of having put on weight or lost hair, the Class of '52 continued together as we had during those years when we became clan members.

As I research my family geneology I have found some interesting facts about the building and gestation of Mac which I'll write about next. Best wishes for your excellent Journal. I hope it will continue.

Jim Currier, BSc(Agr)'52
Glenfield, New Zealand.

Interesting Reading

I received my teacher's training at Macdonald and do enjoy reading the Journal and the reports of activities at the college. My husband was a farmer - on a very small scale - and I find it of interest to read how farming is done today. As a member of the Black Cape Women's Institute I also enjoy the QWI news.

Susie M. Woodman
Grand Cascapedia, Que.

Dr. Lee Baldwin, Professor and former Chairman of the Department of Animal Science at the University of California, Davis, visited Macdonald College during the last week of January. Dr. Baldwin came to the Department of Animal Science to participate as a guest lecturer in

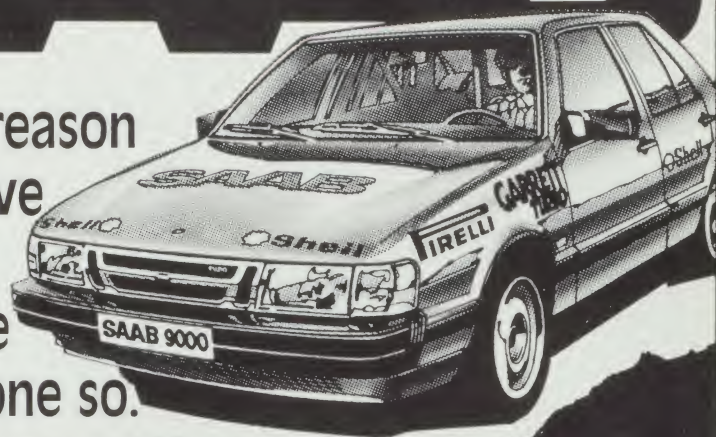


the Graduate Course on "Energy in Nutrition" co-ordinated by Dr. E.R. Chavez. Dr. Baldwin is a world-renowned specialist in energy metabolism in lactating animals and has developed a very comprehensive computer "simulation model" on energy metabolized in the mammary gland.

Maybe it doesn't
walk on water,
but it's not afraid
to get its feet wet.

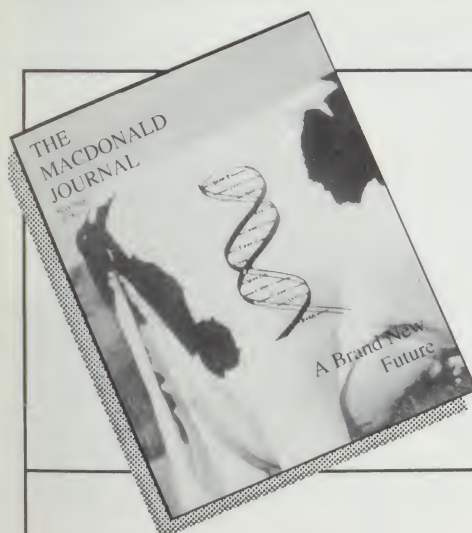
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